

**SEARCH REQUEST FORM****Scientific and Technical Information Center**

Requester's Full Name: Dr. N. B. Dic Examiner #: 69332 Date: 10/11/03  
Art Unit: 1711 Phone Number 30 Serial Number: 10/084,966  
Mail Box and Bldg/Room Location: 10D71 Results Format Preferred (circle): (PAPER) DISK E-MAIL

**If more than one search is submitted, please prioritize searches in order of need.**

\*\*\*\*\*

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: \_\_\_\_\_

Inventors (please provide full names): \_\_\_\_\_

Earliest Priority Filing Date: \_\_\_\_\_

*\*For Sequence Searches Only\* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

*The general formula of claim 1. Thanks.*

\*\*\*\*\*

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|                                    | Type of Search        | Vendors and cost where applicable |
|------------------------------------|-----------------------|-----------------------------------|
| Searcher: _____                    | NA Sequence (#) _____ | STN _____                         |
| Searcher Phone #: _____            | AA Sequence (#) _____ | Dialog _____                      |
| Searcher Location: _____           | Structure (#) _____   | Questel/Orbit _____               |
| Date Searcher Picked Up: _____     | Bibliographic _____   | Dr.Link _____                     |
| Date Completed: _____              | Litigation _____      | Lexis/Nexis _____                 |
| Searcher Prep & Review Time: _____ | Fulltext _____        | Sequence Systems _____            |
| Clerical Prep Time: _____          | Patent Family _____   | WWW/Internet _____                |
| Online Time: _____                 | Other _____           | Other (specify) _____             |

=> file reg

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STRUCTURE FILE UPDATES: 14 DEC 2003 HIGHEST RN 627034-55-3  
DICTIONARY FILE UPDATES: 14 DEC 2003 HIGHEST RN 627034-55-3

TSCA INFORMATION NOW CURRENT THROUGH JULY 14, 2003

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Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more  
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<http://www.cas.org/ONLINE/DBSS/registryss.html>

=> file caplus

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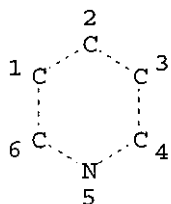
FILE COVERS 1907 - 15 Dec 2003 VOL 139 ISS 25  
FILE LAST UPDATED: 14 Dec 2003 (20031214/ED)

This file contains CAS Registry Numbers for easy and accurate  
substance identification.

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L3 SCR 2043  
L12 STR

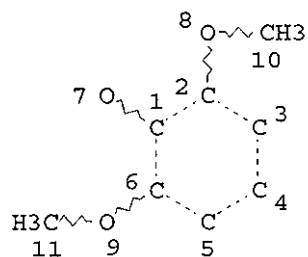
KOROMA EIC1700



NODE ATTRIBUTES:  
 DEFAULT MLEVEL IS ATOM  
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:  
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 NUMBER OF NODES IS 6

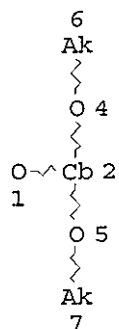
STEREO ATTRIBUTES: NONE  
 L15 STR



NODE ATTRIBUTES:  
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 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:  
 RING(S) ARE ISOLATED OR EMBEDDED  
 NUMBER OF NODES IS 11

STEREO ATTRIBUTES: NONE  
 L17 6 SEA FILE=REGISTRY SSS FUL L15 AND L12 AND L3  
 L18 3 SEA FILE=CAPLUS ABB=ON PLU=ON L17  
 L21 STR



NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 6

STEREO ATTRIBUTES: NONE

L23 19 SEA FILE=REGISTRY SSS FUL L21 AND L12 AND L3

L25 12 SEA FILE=CAPLUS ABB=ON PLU=ON L18 OR L23

=> d ti 1-12

L25 ANSWER 1 OF 12 CAPLUS COPYRIGHT 2003 ACS on STN

TI Solid electrolyte using porous polymer

L25 ANSWER 2 OF 12 CAPLUS COPYRIGHT 2003 ACS on STN

TI Conjugated polymers containing spirobifluorene units and the use thereof

L25 ANSWER 3 OF 12 CAPLUS COPYRIGHT 2003 ACS on STN

TI Optical properties of segmented cyano-containing PPV-based chromophore for fluorescent sensing

L25 ANSWER 4 OF 12 CAPLUS COPYRIGHT 2003 ACS on STN

TI Polymers and dienes, their synthesis, and electronic devices incorporating same

L25 ANSWER 5 OF 12 CAPLUS COPYRIGHT 2003 ACS on STN

TI Polymer-supported ligands, procedures for their production and their use as catalysts

L25 ANSWER 6 OF 12 CAPLUS COPYRIGHT 2003 ACS on STN

TI Application of the continuous Sharpless dihydroxylation

L25 ANSWER 7 OF 12 CAPLUS COPYRIGHT 2003 ACS on STN

TI Asymmetric dihydroxylations using immobilized alkaloids with an

anthraquinone core

L25 ANSWER 8 OF 12 CAPLUS COPYRIGHT 2003 ACS on STN  
TI A novel fluorescent monomer for the selective detection of phenols and anilines

L25 ANSWER 9 OF 12 CAPLUS COPYRIGHT 2003 ACS on STN  
TI Molecular imprinting via a novel mixed acetal linker for a fluorescent sensor

L25 ANSWER 10 OF 12 CAPLUS COPYRIGHT 2003 ACS on STN  
TI Covalently immobilized fluoroionophores as optical ion sensors

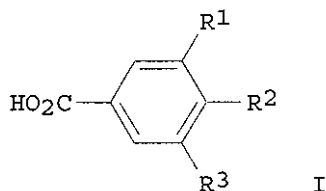
L25 ANSWER 11 OF 12 CAPLUS COPYRIGHT 2003 ACS on STN  
TI Supramolecular Electrode Materials Derivated from Pyrrole-Substituted Ruthenium(II) Bipyridyl Calix[4]arenes

L25 ANSWER 12 OF 12 CAPLUS COPYRIGHT 2003 ACS on STN  
TI Oligomers containing carbocyanine/flexible chain segments as nonlinear optical materials

=> d ibib abs hitstr ind total

L25 ANSWER 1 OF 12 CAPLUS COPYRIGHT 2003 ACS on STN  
ACCESSION NUMBER: 2003:531597 CAPLUS  
DOCUMENT NUMBER: 139:103747  
TITLE: Solid electrolyte using porous polymer  
INVENTOR(S): Nakamura, Shinichi; Igawa, Satoshi  
PATENT ASSIGNEE(S): Canon Inc., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

| PATENT NO.             | KIND | DATE     | APPLICATION NO. | DATE     |
|------------------------|------|----------|-----------------|----------|
| -----                  | ---  | -----    | -----           | -----    |
| JP 2003197263          | A2   | 20030711 | JP 2001-394363  | 20011226 |
| PRIORITY APPLN. INFO.: |      |          | JP 2001-394363  | 20011226 |
| GI                     |      |          |                 |          |



AB The electrolyte, especially for a secondary lithium battery, has a polymer obtained by polymerization of a compound I [R1, R2 and R3 = H, halo or C1-18 alkyl

group having  $\geq 1$  -CH<sub>2</sub>- is substituted by -O-, -CO-, -Pha-, -CH=CH-, -C(CH<sub>3</sub>)=CH-. -CC- or epoxy group; Pha = 1,4-phenylene which may be substituted by C1-25 alkyl group having  $\geq 1$  -CH<sub>2</sub>- is substituted by -O-, -CO-, -CH=CH-, -C(CH<sub>3</sub>)=CH-. -CC- or epoxy group; and  $\geq 1$  of R1, R2 and R3 = acryl, methacryl, vinyl, or epoxy group] and having several hollow parts inside; where the hollow parts are filled with a metal salt electrolyte solution

IT 558474-11-6P 558474-14-9P

RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)  
(solid electrolytes using porous polymers for secondary lithium batteries)

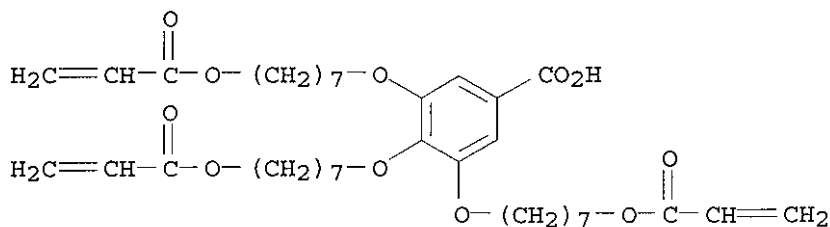
RN 558474-11-6 CAPLUS

CN Benzoic acid, 3,4,5-tris[[7-[(1-oxo-2-propenyl)oxy]heptyl]oxy]-, polymer with N-4-pyridinyl-4-pyridinecarboxamide (9CI) (CA INDEX NAME)

CM 1

CRN 558474-10-5

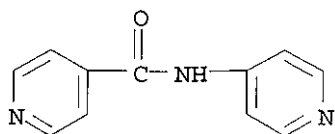
CMF C37 H54 O11



CM 2

CRN 64479-78-3

CMF C11 H9 N3 O



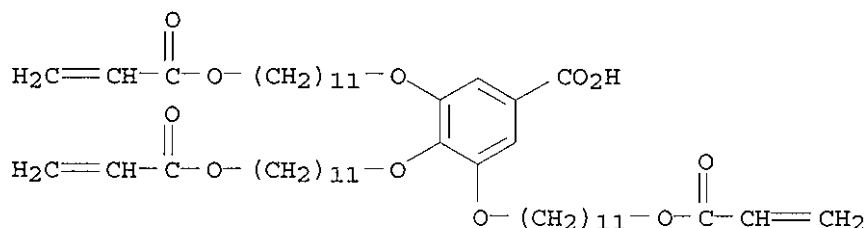
RN 558474-14-9 CAPLUS

CN Benzoic acid, 3,4,5-tris[[11-[(1-oxo-2-propenyl)oxy]undecyl]oxy]-, polymer with N-4-pyridinyl-4-pyridinecarboxamide (9CI) (CA INDEX NAME)

CM 1

CRN 210822-61-0

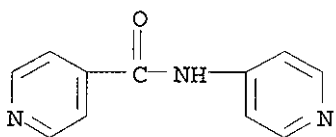
CMF C49 H78 O11



CM 2

CRN 64479-78-3

CMF C11 H9 N3 O



IC ICM H01M010-40

ICS H01B001-06

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST secondary lithium battery solid electrolyte porous polymer

IT Battery electrolytes

Polymer electrolytes

(solid electrolytes using porous polymers for secondary lithium batteries)

IT 96-48-0,  $\gamma$ -Butyrolactone 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate 109-99-9, Tetrahydrofuran, uses 14283-07-9, Lithium tetrafluoroborate

KOROMA EIC1700

RL: DEV (Device component use); USES (Uses)  
(solid electrolytes using porous polymers for secondary lithium batteries)

IT 558474-07-0P 558474-09-2P **558474-11-6P** 558474-12-7P  
558474-13-8P **558474-14-9P**

RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)  
(solid electrolytes using porous polymers for secondary lithium batteries)

L25 ANSWER 2 OF 12 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 2003:202698 CAPLUS

DOCUMENT NUMBER: 138:238568

TITLE: Conjugated polymers containing spirobifluorene units and the use thereof

INVENTOR(S): Becker, Heinrich; Treacher, Kevin; Spreitzer, Hubert; Falcou, Aurelie; Stoessel, Philipp; Buesing, Arne; Parham, Amir

PATENT ASSIGNEE(S): Covion Organic Semiconductors G.m.b.H., Germany

SOURCE: PCT Int. Appl., 58 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO.    | KIND | DATE     | APPLICATION NO. | DATE     |
|---------------|------|----------|-----------------|----------|
| WO 2003020790 | A2   | 20030313 | WO 2002-EP9628  | 20020829 |
| WO 2003020790 | A3   | 20030912 |                 |          |

W: CN, JP, KR, US

RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT,

LU, MC, NL, PT, SE, SK, TR

DE 10143353 A1 20030320 DE 2001-10143353 20010904

PRIORITY APPLN. INFO.: DE 2001-10143353 A 20010904

AB Spirobifluorene-type unit-containing conjugated polymer, useful in optoelectronic devices, are manufactured containing  $\geq 1$  addnl. unit that (a) improves the insertion or transportation of holes, (b) improves the insertion or transportation of electrons, (c) accomplishes both (a) and (b), and (d) exhibits phosphorescence. A typical polymer was manufactured by polymerization of 1.768 g 2,7-dibromo-2',3',6',7'-tetrakis(2-methylbutoxy)spirobifluorene with 0.183 g N,N'-bis(4-bromophenyl)-N,N'-bis(4-tert-butylphenyl)benzidine by the Yamamoto coupling in PhMe-DMF mixture in the presence of 1,5-cyclooctadiene, Ni(COD)<sub>2</sub>, and 2,2'-bipyridyl.

IT **501435-05-8P**

RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)  
(conjugated polymers containing spirobifluorene units and units that phosphoresce for optoelectronic devices)

RN 501435-05-8 CAPLUS

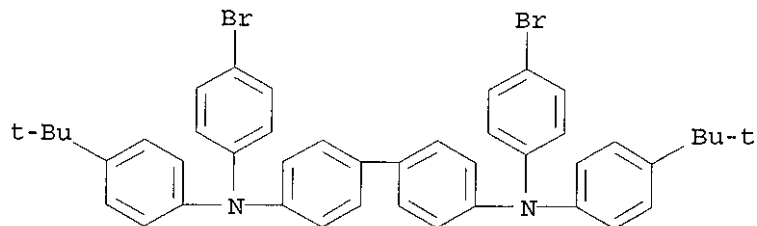
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-bromophenyl)-N,N'-bis[4-(1,1-dimethylethyl)phenyl]-, polymer with 5,8-dibromo-2,3-di-2-pyridinylquinoxaline, 2,7-dibromo-2',3',6',7'-tetrakis(2-methylbutoxy)-

9,9'-spirobi[9H-fluorene] and 2,2'-[2',3',6',7'-tetrakis(2-methylbutoxy) -  
9,9'-spirobi[9H-fluorene]-2,7-diyl]bis[1,3,2-dioxaborolane] (9CI) (CA  
INDEX NAME)

CM 1

CRN 463944-36-7

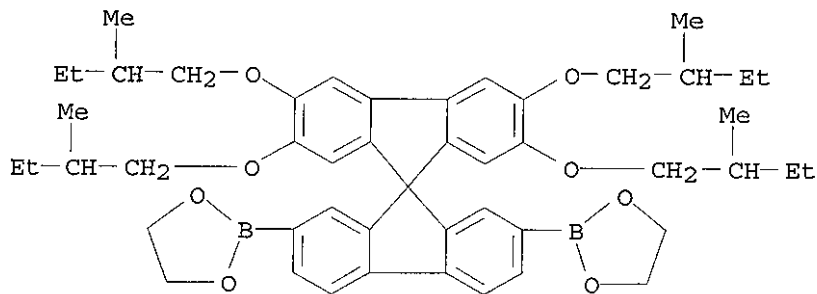
CMF C44 H42 Br2 N2



CM 2

CRN 396123-43-6

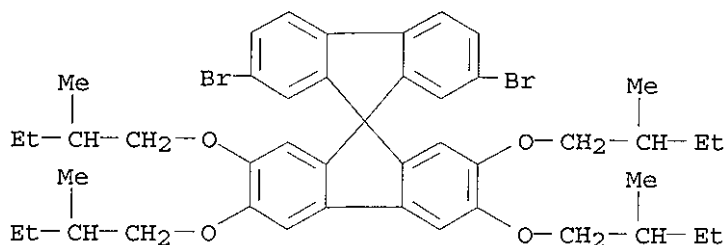
CMF C49 H62 B2 O8



CM 3

CRN 395059-23-1

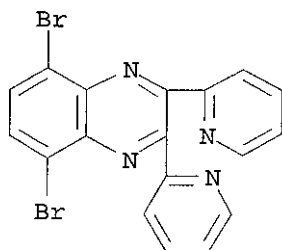
CMF C45 H54 Br2 O4



CM 4

CRN 175858-16-9

CMF C18 H10 Br2 N4



IC ICM C08G061-00  
ICS C09K011-06; H05B033-14; H01L051-30

CC 35-5 (Chemistry of Synthetic High Polymers)  
Section cross-reference(s): 73, 76

ST conjugated spirobifluorene polymer optoelectronic device; dibromotetrakis methylbutoxyspirobifluorene copolymer bisbromophenyl tertiary butylphenyl benzidine manuf

IT Optoelectronic semiconductor devices  
(conjugated polymers containing spirobifluorene units and units that phosphoresce for optoelectronic devices)

IT Cardo polymers  
RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)  
(conjugated polymers containing spirobifluorene units and units that phosphoresce for optoelectronic devices)

IT Luminescent substances  
(electroluminescent; conjugated polymers containing spirobifluorene units and units that phosphoresce for optoelectronic devices)

IT 501434-82-8P 501434-83-9P 501434-85-1P 501434-87-3P 501434-88-4P  
501434-90-8P 501434-92-0P 501434-94-2P 501434-95-3P 501434-96-4P  
501434-97-5P 501434-98-6P 501434-99-7P 501435-00-3P 501435-01-4P  
501435-03-6P 501435-04-7P **501435-05-8P** 501435-07-0P  
501435-08-1P 501435-10-5P 501435-11-6P 501435-12-7P 501435-13-8P  
501435-14-9P 501435-15-0P 501435-16-1P 501435-17-2P 501435-18-3P  
501435-20-7P 501435-21-8P 501435-23-0P 501435-24-1P 501435-25-2P

501435-26-3P 501435-27-4P 501435-28-5P 501435-29-6P 501435-30-9P  
501657-52-9P

RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)  
(conjugated polymers containing spirobifluorene units and units that  
phosphoresce for optoelectronic devices)

IT 165190-76-1P, 4,7-Bis(thien-2-yl)-2,1,3-benzothiadiazole 501434-69-1P,  
5'-tert-Butyl-2'-(4''-tert-butylphenyl)-2,3-bis(2-methylbutyloxy)biphenyl  
501434-70-4P, 2-Bromo-5'-tert-butyl-2'-(4''-tert-butylphenyl)-4,5-bis(2-  
methylbutyloxy)biphenyl 501434-74-8P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT  
(Reactant or reagent)

(monomer precursor; conjugated polymers containing spirobifluorene units  
and units that phosphoresce for optoelectronic devices)

IT 122-39-4, Diphenylamine, reactions 134-81-6, Benzil 328-70-1,  
1-Bromo-3,5-bis(trifluoromethyl)benzene 401-78-5, 1-Bromo-3-  
trifluoromethylbenzene 553-94-6, 2-Bromo-1,4-dimethylbenzene  
1122-91-4, 4-Bromobenzaldehyde 6165-68-0, Thiophene-2-boronic acid  
14348-75-5, 2,7-Dibromofluoren-9-one 15155-41-6, 4,7-Dibromo-2,1,3,-  
benzothiadiazole 31558-41-5, 4-Bromo-2,5-dimethoxybenzaldehyde  
69272-50-0, 3,6-Dibromo-1,2-phenylenediamine 70728-89-1,  
2-Bromo-4,4'-di-tert-butylbiphenyl 171408-84-7, 2,7-Dibromo-9,9'-  
spirobifluorene 171408-88-1, 2,7-Diiodo-2',7'-dibromo-9,9'-  
spirobifluorene 340148-67-6, 3,4-Bis(2-methylbutyloxy)benzeneboronic  
acid 501434-77-1D, derivs. 501434-79-3D, derivs.

RL: RCT (Reactant); RACT (Reactant or reagent)

(monomer precursor; conjugated polymers containing spirobifluorene units  
and units that phosphoresce for optoelectronic devices)

IT 94544-77-1P, 5,8-Dibromo-2,3-diphenylquinoxaline 288071-87-4P,  
4,7-Bis(2-bromo-5-thienyl)-2,1,3-benzothiadiazole 501434-68-0P,  
2,7-Dibromo-8'-tert-butyl-5'-(4''-tert-butylphenyl)-2',3'-bis(2-  
methylbutyloxy)spirobifluorene 501434-71-5P 501434-72-6P  
501434-73-7P, 4-Bromo-7-(2-bromo-5-thienyl)-2,1,3-benzothiadiazole  
501434-75-9P, 1-(2-Ethylhexyloxy)-4-methoxy-2,5-bis-(4-bromo-2,5-  
dimethoxystyryl)benzene 501434-76-0P, 2,3,6,7-Tetrakis(2-methylbutoxy)-  
2',7'-bis(4-bromostyryl)-9,9'spirobifluorene 501434-78-2P,  
1,4-Dibromo-2,5-(4-fluorostyryl)benzene 501434-80-6P,  
2,7-Dibromo-2',7'-(N,N-diphenylamino)-9,9'-spirobifluorene 501657-51-8P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT  
(Reactant or reagent)

(monomer; conjugated polymers containing spirobifluorene units and units  
that phosphoresce for optoelectronic devices)

L25 ANSWER 3 OF 12 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 2002:893977 CAPLUS

DOCUMENT NUMBER: 138:310853

TITLE: Optical properties of segmented cyano-containing  
PPV-based chromophore for fluorescent sensing

AUTHOR(S): Lee, Taek Seung; Na, Jongho; Lee, Jin Kyun; Park, Won  
Ho

CORPORATE SOURCE: Department of Textile Engineering, Organic and  
Optoelectronic Materials Laboratory, Chungnam National  
University, Taejon, 305-764, S. Korea

SOURCE: Optical Materials (Amsterdam, Netherlands) (2003),  
21(1-3), 429-432  
CODEN: OMATET; ISSN: 0925-3467  
PUBLISHER: Elsevier Science B.V.  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB Optical metal ion responsive properties of segmented cyano-PPV derivative with pyridyl group are reported. The polymer solution in DMF exhibited absorption maximum at 346 nm and emission maximum at .apprx.470 nm (excitation wavelength 346 nm). A new absorption was observed at 296 nm by addition of ferric and uranyl ions to the polymer solution presumably due to charge transfer interaction between polymer chain and metal ion. Consecutive fluorescence quenching was induced upon exposure to ferric ion. It is presumed that the metal ion binding leads to produce trapping sites for the excitation resulting in fluorescence quenching.

IT 509078-08-4P

RL: PNU (Preparation, unclassified); PRP (Properties); PREP (Preparation)  
(optical properties of segmented cyano-containing PPV-based chromophore for fluorescent sensing and effect of iron and uranyl ions)

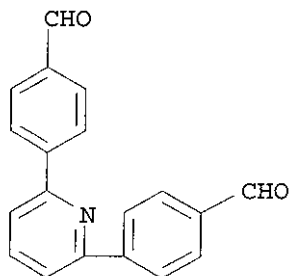
RN 509078-08-4 CAPLUS

CN 1,4-Benzenediacetonitrile, polymer with 4,4'-[1,8-octanediylbis(oxy)]bis[2,6-dimethoxybenzaldehyde] and 4,4'-(2,6-pyridinediyl)bis[benzaldehyde] (9CI) (CA INDEX NAME)

CM 1

CRN 509078-07-3

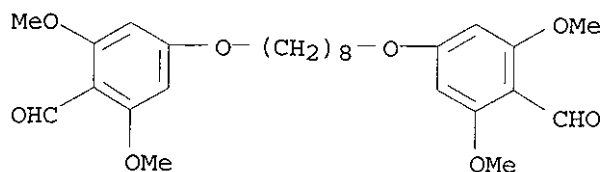
CMF C19 H13 N O2



CM 2

CRN 213980-90-6

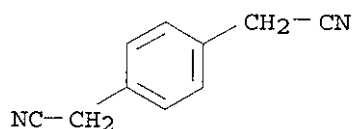
CMF C26 H34 O8



CM 3

CRN 622-75-3

CMF C10 H8 N2



CC 73-2 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
 Section cross-reference(s): 36

ST optical property segmented cyano PPV fluorescent polymer; sensing polymer uranyl iron ion

IT Optical sensors  
 (materials for; optical properties of segmented cyano-containing PPV-based chromophore for fluorescent sensing and effect of iron and uranyl ions)

IT Fluorescence quenching  
 UV and visible spectra  
 (optical properties of segmented cyano-containing PPV-based chromophore for fluorescent sensing and effect of iron and uranyl ions)

IT 16637-16-4P, Uranyl ion(2+) **509078-08-4P**  
 RL: PNU (Preparation, unclassified); PRP (Properties); PREP (Preparation)  
 (optical properties of segmented cyano-containing PPV-based chromophore for fluorescent sensing and effect of iron and uranyl ions)

IT 622-75-3, 1,4-Phenylenediacetonitrile 213980-90-6 509078-07-3  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (optical properties of segmented cyano-containing PPV-based chromophore for fluorescent sensing and effect of iron and uranyl ions)

IT 7439-89-6P, Iron, properties  
 RL: PNU (Preparation, unclassified); PRP (Properties); PREP (Preparation)  
 (trivalent ions; optical properties of segmented cyano-containing PPV-based chromophore for fluorescent sensing and effect of iron and uranyl ions)

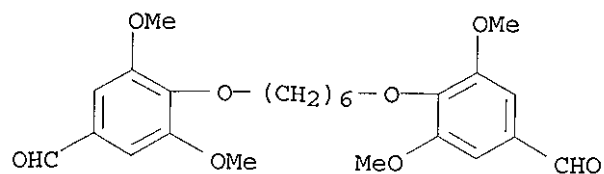
REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L25 ANSWER 4 OF 12 CAPLUS COPYRIGHT 2003 ACS on STN  
 ACCESSION NUMBER: 2002:716337 CAPLUS  
 DOCUMENT NUMBER: 137:248122  
 TITLE: Polymers and dienes, their synthesis, and electronic

KOROMA EIC1700

INVENTOR(S): devices incorporating same  
 PATENT ASSIGNEE(S): Epstein, Arthur; Wang, Daike  
 SOURCE: The Ohio State University, USA  
 PCT Int. Appl., 54 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

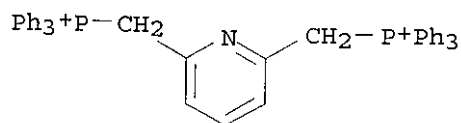
| PATENT NO.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | KIND                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | DATE     | APPLICATION NO. | DATE       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-----------------|------------|
| WO 2002072654                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | A2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 20020919 | WO 2002-US7420  | 20020312   |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,<br>CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,<br>GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,<br>LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH,<br>PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ,<br>UA, UG, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM<br>RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH,<br>CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR,<br>BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |          |                 |            |
| US 2002177637                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | A1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 20021128 | US 2002-84866   | 20020228   |
| PRIORITY APPLN. INFO.:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |          |                 |            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |          | US 2001-275443P | P 20010313 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |          | US 2001-275762P | P 20010314 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |          | US 2002-84866   | A 20020228 |
| AB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Polymers having RCH:CHR1CH:CHR groups [R = substituted phenylene or<br>(substituted) pyridinediyl] in the backbone and RCH:CHR1CH:CHR [R =<br>(substituted) quinolinyl, (substituted) pyridinyl, substituted Ph, or<br>(substituted) naphthyl; R1 = (substituted) C6H4 or (substituted)<br>pyridinediyl] are manufactured A typical polymer was manufactured by refluxing<br>mixture containing 150 mL THF, 502 mg 1,6-bis(2,6-dimethoxy-4-<br>carbonylphenoxy)hexane, 890 g 2,6-pyridinediylbis(triphenylphosphonium<br>bromide), and 10 mL 2M KO-tert-Bu in THF. |          |                 |            |
| IT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 460061-29-4P 460061-30-7P 460061-32-9P<br>460061-33-0P<br>RL: IMF (Industrial manufacture); PREP (Preparation)<br>(conjugated unsatd. aromatic polymers and divinylarylene compds. for<br>electronic devices)                                                                                                                                                                                                                                                                                                                                                      |          |                 |            |
| RN                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 460061-29-4 CAPLUS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |          |                 |            |
| CN                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Phosphonium, [2,6-pyridinediylbis(methylene)]bis[triphenyl-, dibromide,<br>polymer with 4,4'-[1,6-hexanediylbis(oxy)]bis[3,5-dimethoxybenzaldehyde]<br>(9CI) (CA INDEX NAME)                                                                                                                                                                                                                                                                                                                                                                                       |          |                 |            |
| CM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |          |                 |            |
| CRN                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 204185-68-2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |          |                 |            |
| CMF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | C24 H30 O8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |          |                 |            |



CM 2

CRN 143756-79-0

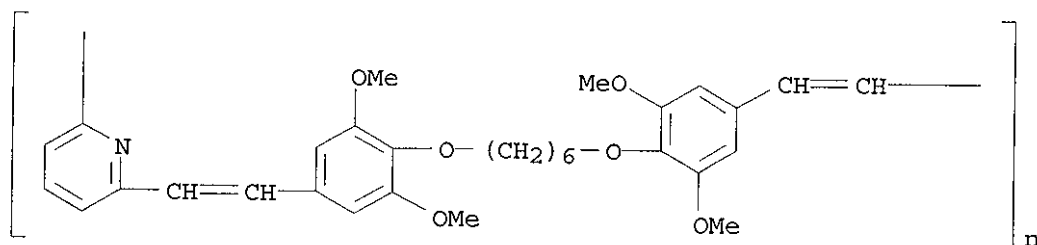
CMF C43 H37 N P2 . 2 Br



● 2 Br<sup>-</sup>

RN 460061-30-7 CAPLUS

CN Poly[2,6-pyridinediyl-1,2-ethenediyl(3,5-dimethoxy-1,4-phenylene)oxy-1,6-hexanedioxy(2,6-dimethoxy-1,4-phenylene)-1,2-ethenediyl] (9CI) (CA INDEX NAME)



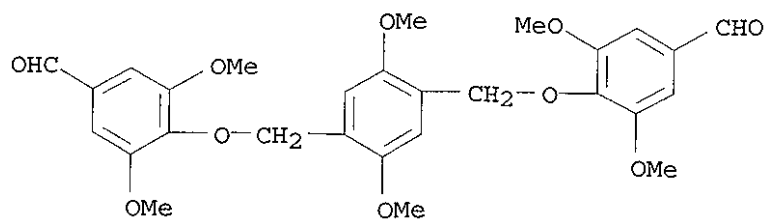
RN 460061-32-9 CAPLUS

CN Phosphonium, [2,6-pyridinediylbis(methylene)]bis[triphenyl-, dibromide, polymer with 4,4'-[(2,5-dimethoxy-1,4-phenylene)bis(methyleneoxy)]bis[3,5-dimethoxybenzaldehyde] (9CI) (CA INDEX NAME)

CM 1

CRN 460061-31-8

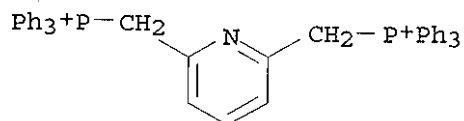
CMF C28 H30 O10



CM 2

CRN 143756-79-0

CMF C43 H37 N P2 . 2 Br

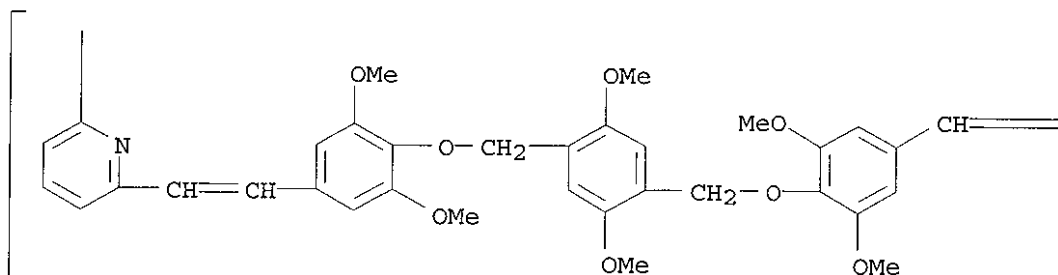


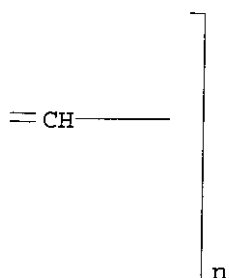
●2 Br<sup>-</sup>

RN 460061-33-0 CAPLUS

CN Poly[2,6-pyridinediyl-1,2-ethenediyl(3,5-dimethoxy-1,4-phenylene)oxymethylene(2,5-dimethoxy-1,4-phenylene)methyleneoxy(2,6-dimethoxy-1,4-phenylene)-1,2-ethenediyl] (9CI) (CA INDEX NAME)

PAGE 1-A





IC ICM C08G

CC 35-4 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 76

ST polyaryleneethenylene manuf electronic device;  
bisdimethylcarbonylphenoxyhexane pyridinediylbistriphenylphosphonium  
bromide copolymer manuf

IT Electric apparatus  
(conjugated unsatd. aromatic polymers and divinylarylene compds. for electronic devices)

IT Poly(arylenealkenylenes)  
RL: IMF (Industrial manufacture); PREP (Preparation)  
(conjugated unsatd. aromatic polymers and divinylarylene compds. for electronic devices)

|    |                     |                     |                     |                     |              |  |
|----|---------------------|---------------------|---------------------|---------------------|--------------|--|
| IT | 2131-98-8P          | 3095-81-6P          | 6266-89-3P          | 24346-76-7P         | 51249-14-0P  |  |
|    | 103046-42-0P        | 107758-51-0P        | 188970-59-4P        | 204185-75-1P        | 219144-52-2P |  |
|    | 289059-26-3P        | 289059-27-4P        | <b>460061-29-4P</b> | <b>460061-30-7P</b> |              |  |
|    | <b>460061-32-9P</b> | <b>460061-33-0P</b> | 460061-34-1P        | 460061-35-2P        |              |  |
|    | 460061-36-3P        | 460061-37-4P        | 460061-38-5P        | 460061-39-6P        | 460061-40-9P |  |
|    | 460061-41-0P        | 460061-42-1P        |                     |                     |              |  |

RL: IMF (Industrial manufacture); PREP (Preparation)  
(conjugated unsatd. aromatic polymers and divinylarylene compds. for  
electronic devices)

IT 66-99-9, 2-Naphthaldehyde 86-51-1, 2,3-Dimethoxybenzaldehyde 123-11-5,  
p-Anisaldehyde, reactions 872-85-5, 4-Pyridinecarboxaldehyde  
1122-72-1, 6-Methyl-2-pyridinecarboxaldehyde 1519-47-7,  
1,4-Xylylenebis(triphenylphosphonium chloride) 2103-57-3,  
2,3,4-Trimethoxybenzaldehyde 4363-93-3, 4-Quinolinecarboxaldehyde  
5470-96-2, 2-Quinolinecarboxaldehyde 10273-64-0 61973-87-3  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(divinylarylene compound precursor; conjugated unsatd. aromatic polymers and  
divinylarylene compds. for electronic devices)

L25 ANSWER 5 OF 12 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 2002:27549 CAPLUS

DOCUMENT NUMBER: 136:87503

TITLE: Polymer-supported ligands, procedures for their production and their use as catalysts

INVENTOR(S) : Woeltinger, Jens; Henniges, Hans; Bolm, Carsten;  
Maischak, Astrid; Burkhardt, Olaf; Reichert, Dietmar;

Karau, Andreas; Philippe, Jean-Louis; Bommaris, Andreas; Drauz, Karlheinz; Krimmer, Hans-Peter  
 PATENT ASSIGNEE(S): Degussa Ag, Germany  
 SOURCE: Ger. Offen., 28 pp.  
 CODEN: GWXXBX  
 DOCUMENT TYPE: Patent  
 LANGUAGE: German  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

| PATENT NO.                                 | KIND | DATE     | APPLICATION NO.  | DATE     |
|--------------------------------------------|------|----------|------------------|----------|
| DE 10036328                                | A1   | 20020110 | DE 2000-10036328 | 20000726 |
| PRIORITY APPLN. INFO.: DE 2000-10029600 A1 |      |          | 20000615         |          |
| OTHER SOURCE(S): MARPAT 136:87503          |      |          |                  |          |

AB The invention treats optically active homogeneous soluble polymer-supported ligands containing, as the active unit causing chiral induction,  $\geq 1$  of anthraquinone, dihydroquinidine, and dihydroquinine groups, with the polymer being selected from polyacrylates, polyvinylpyrrolidone, polysiloxanes, polybutadiene, polyisoprene, hydrocarbon polymers, PEG, PPG, polystyrene, and polyoxazoline, for use in manufacture of enantiomer-enriched organic compds., preferably in dihydroxylation and aminohydroxylation of unsatd. compds. A typical catalyst was manufactured by stirring DCM containing MeO(CH<sub>2</sub>CH<sub>2</sub>O)<sub>n</sub>COCH<sub>2</sub>CH<sub>2</sub>CO<sub>2</sub>H 0.51, 1,4-bis(9-O-dihydroquinidiny1)-9-(4-hydroxyphenyl)anthraquinone 0.14, DMAP 0.003, and DCC 0.02 g 24 h.

IT 332877-55-1P 332877-56-2P 332877-58-4P  
 332877-59-5P 386704-25-2P 386704-27-4P

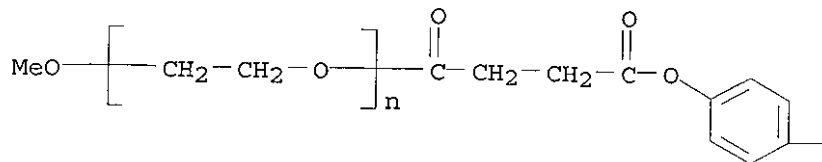
RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation);  
 USES (Uses)

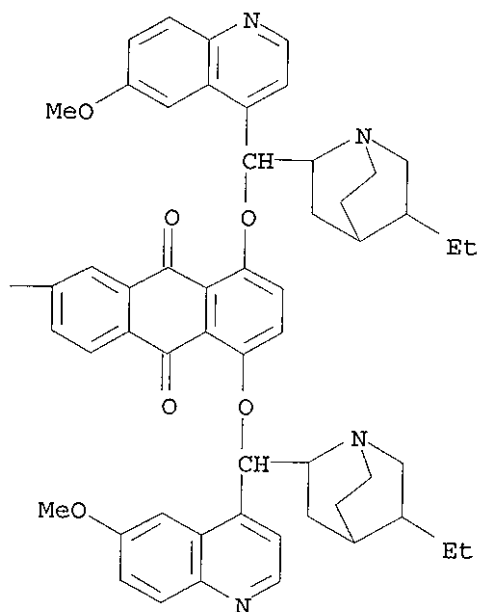
(polymer-supported optically active ligands for catalysts of  
 enantiomeric dihydroxylation and aminohydroxylation of unsatd. compds.)

RN 332877-55-1 CAPLUS

CN Poly(oxy-1,2-ethanediyl),  $\alpha$ -[4-[4-[5,8-bis[[ (9S)-10,11-dihydro-6'-methoxycinchonan-9-yl]oxy]-9,10-dihydro-9,10-dioxo-2-anthracenyl]phenoxy]-1,4-dioxobutyl]- $\omega$ -methoxy- (9CI) (CA INDEX NAME)

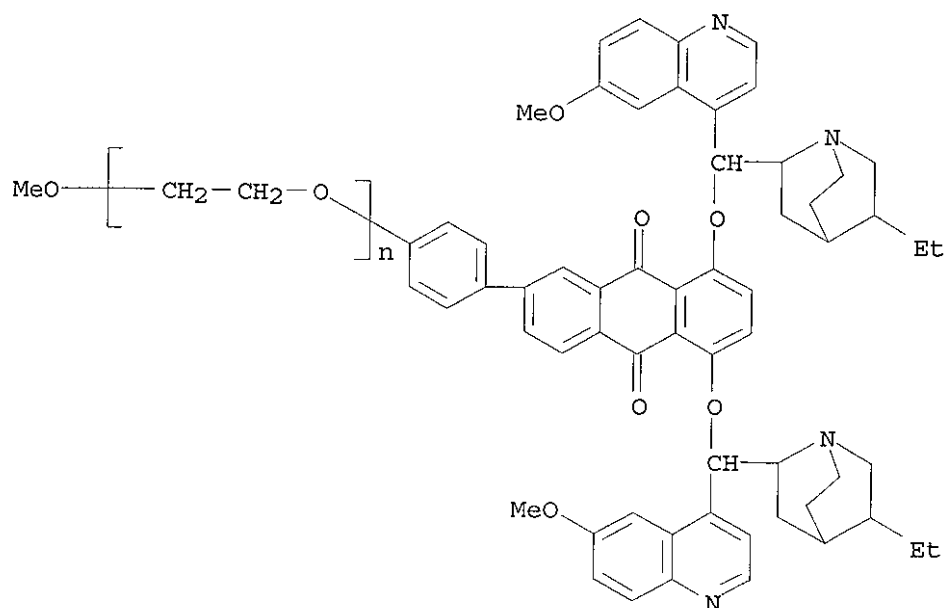
PAGE 1-A





RN 332877-56-2 CAPLUS

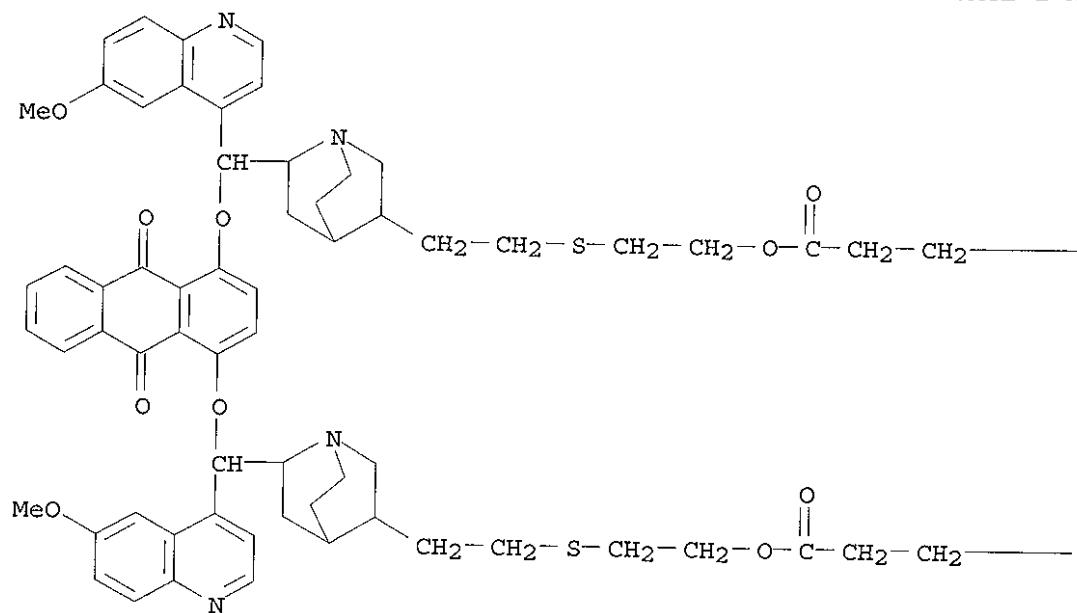
CN Poly(oxy-1,2-ethanediyl),  $\alpha$ -[4-[5,8-bis[[[(9S)-10,11-dihydro-6'-methoxycinchonan-9-yl]oxy]-9,10-dihydro-9,10-dioxo-2-anthracenyl]phenyl]- $\omega$ -methoxy- (9CI) (CA INDEX NAME)



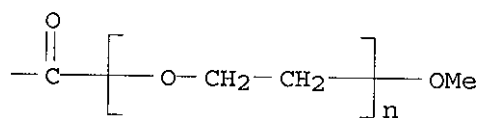
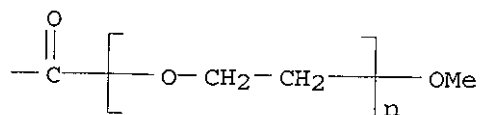
RN 332877-58-4 CAPLUS

CN Poly(oxy-1,2-ethanediyl),  $\alpha, \alpha'$ -(9,10-dihydro-9,10-dioxo-1,4-anthracenediyl)bis[oxy[(9S)-10,11-dihydro-6'-methoxycinchonan-9,11-diyl]thio-2,1-ethanediyl]oxy(1,4-dioxo-4,1-butanediyl)]bis[ $\alpha$ -methoxy-(9CI) (CA INDEX NAME)

PAGE 1-A



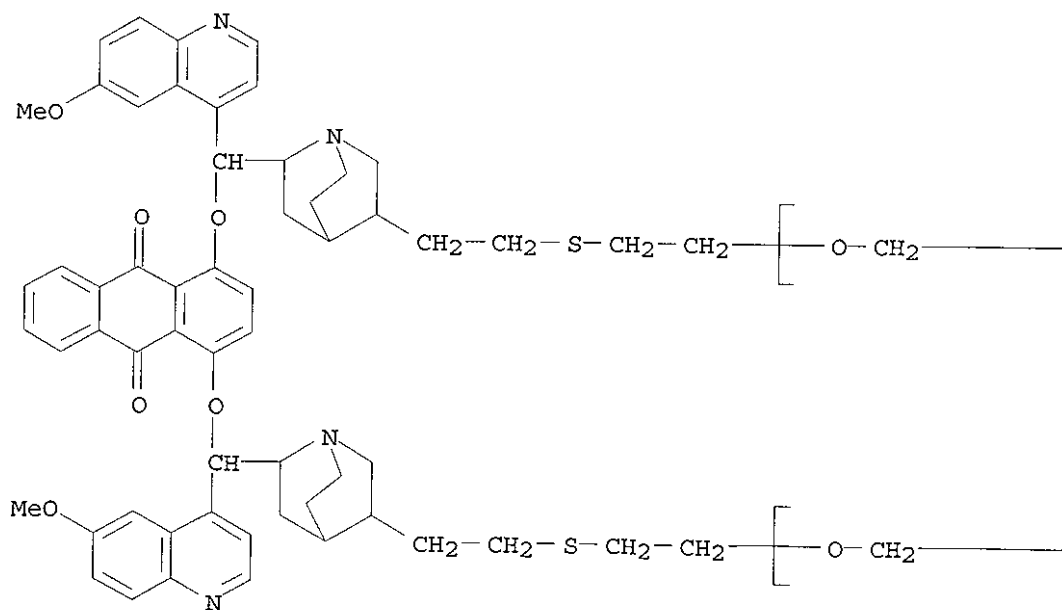
PAGE 1-B



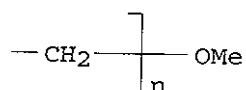
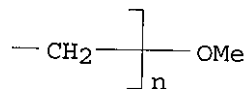
RN 332877-59-5 CAPLUS

CN Poly(oxy-1,2-ethanediyl),  $\alpha, \alpha'$ -(9,10-dihydro-9,10-dioxo-1,4-anthracenediyl)bis[oxy[(9S)-10,11-dihydro-6'-methoxycinchonan-9,11-diyl]thio-2,1-ethanediyl]bis[ $\omega$ -methoxy- (9CI) (CA INDEX NAME)]

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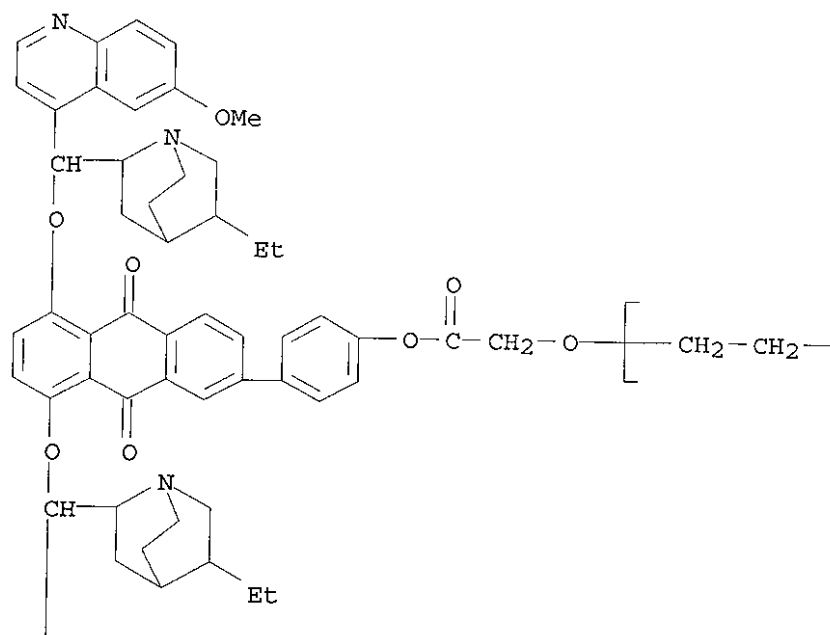
PAGE 1-B



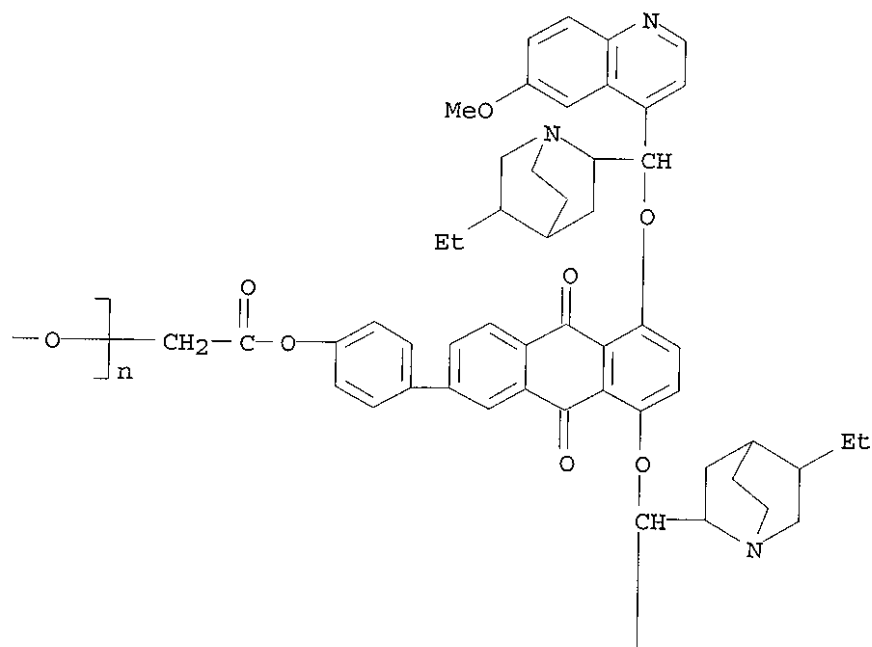
RN 386704-25-2 CAPLUS

CN Poly(oxy-1,2-ethanediyl),  $\alpha$ -[2-[4-[5,8-bis[[(9S)-10,11-dihydro-6'-methoxycinchonan-9-yl]oxy]-9,10-dihydro-9,10-dioxo-2-anthracenyl]phenoxy]-2-oxoethyl]- $\omega$ -[2-[4-[5,8-bis[[(9S)-10,11-dihydro-6'-methoxycinchonan-9-yl]oxy]-9,10-dihydro-9,10-dioxo-2-anthracenyl]phenoxy]-2-oxoethoxy]-(9CI) (CA INDEX NAME)

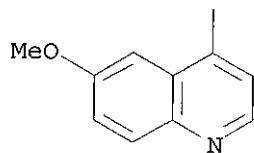
PAGE 1-A



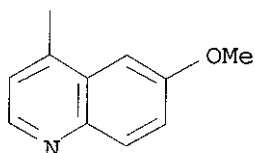
PAGE 1-B



PAGE 2-A

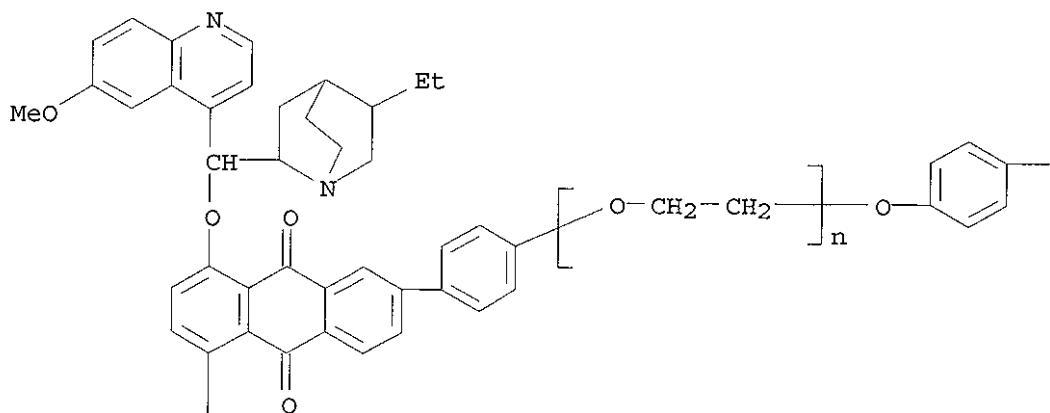


PAGE 2-B

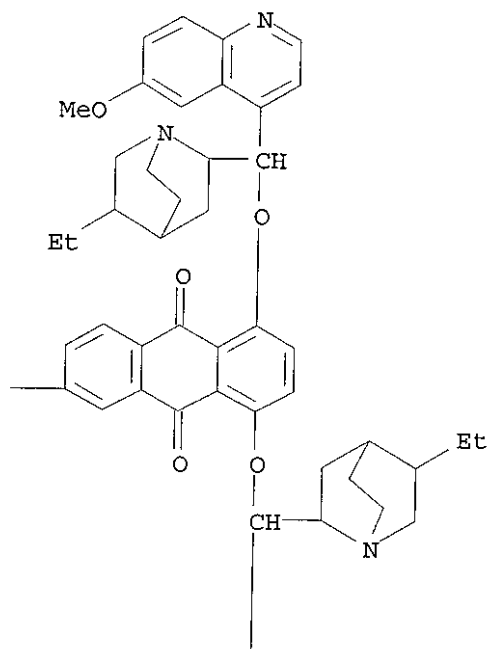


RN 386704-27-4 CAPLUS  
 CN Poly(oxy-1,2-ethanediyl),  $\alpha$ -[4-[5,8-bis[[[(9S)-10,11-dihydro-6'-methoxycinchonan-9-yl]oxy]-9,10-dihydro-9,10-dioxo-2-anthracenyl]phenyl]-  
 $\omega$ -[4-[5,8-bis[[[(9S)-10,11-dihydro-6'-methoxycinchonan-9-yl]oxy]-9,10-dihydro-9,10-dioxo-2-anthracenyl]phenoxy]-(9CI) (CA INDEX NAME)

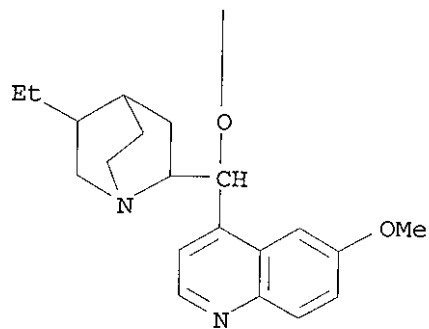
PAGE 1-A



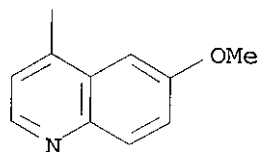
PAGE 1-B



PAGE 2-A



PAGE 2-B



IC ICM C08F008-00  
CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)

KOROMA EIC1700

Section cross-reference(s): 23, 67

- ST anthraquinone quinidine quinine deriv catalyst polyacrylate supported enantiomeric hydroxylation; polyoxazoline supported anthraquinone quinidine quinine deriv catalyst enantiomeric hydroxylation; polystyrene supported anthraquinone quinidine quinine deriv catalyst enantiomeric hydroxylation; PPG supported anthraquinone quinidine quinine deriv catalyst enantiomeric hydroxylation; PEG supported anthraquinone quinidine quinine deriv catalyst enantiomeric hydroxylation; polyisoprene supported anthraquinone quinidine quinine deriv catalyst enantiomeric hydroxylation; polybutadiene supported anthraquinone quinidine quinine deriv catalyst enantiomeric hydroxylation; polysiloxane supported anthraquinone quinidine quinine deriv catalyst enantiomeric hydroxylation; aminohydroxylation enantiomeric anthraquinone quinidine quinine deriv catalyst polyvinylpyrrolidone supported
- IT Polyamines  
 RL: CAT (Catalyst use); USES (Uses)  
 (polyethylene-, N-acyl, support; polymer-supported optically active ligands for catalysts of enantiomeric dihydroxylation and aminohydroxylation of unsatd. compds.)
- IT Aminohydroxylation catalysts  
 Dihydroxylation catalysts  
 Polymer-supported reagents  
 (polymer-supported optically active ligands for catalysts of enantiomeric dihydroxylation and aminohydroxylation of unsatd. compds.)
- IT Unsaturated compounds  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (polymer-supported optically active ligands for catalysts of enantiomeric dihydroxylation and aminohydroxylation of unsatd. compds.)
- IT Polyethers, uses  
 Polysiloxanes, uses  
 RL: CAT (Catalyst use); USES (Uses)  
 (support; polymer-supported optically active ligands for catalysts of enantiomeric dihydroxylation and aminohydroxylation of unsatd. compds.)
- IT 86-90-8P, 4-Bromophthalic anhydride 28736-42-7P, 1,4-Difluoroanthraquinone 332877-52-8P 386704-19-4P 386704-21-8P  
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
 (ligand precursor; polymer-supported optically active ligands for catalysts of enantiomeric dihydroxylation and aminohydroxylation of unsatd. compds.)
- IT 56-54-2, Quinidine 60-24-2, 2-Mercaptoethanol 85-44-9, Phthalic anhydride 98-80-6, Phenylboronic acid 540-36-3, 1,4-Difluorobenzene 583-71-1, 4-Bromo-o-xylene 1435-55-8, Dihydroquinidine  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (ligand precursor; polymer-supported optically active ligands for catalysts of enantiomeric dihydroxylation and aminohydroxylation of unsatd. compds.)
- IT 332877-54-0P 332877-57-3P  
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
 (ligand; polymer-supported optically active ligands for catalysts of enantiomeric dihydroxylation and aminohydroxylation of unsatd. compds.)

IT 332877-55-1P 332877-56-2P 332877-58-4P  
 332877-59-5P 386704-25-2P 386704-27-4P  
 RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation);  
 USES (Uses)  
 (polymer-supported optically active ligands for catalysts of  
 enantiomeric dihydroxylation and aminohydroxylation of unsatd. compds.)

IT 52611-39-9P, S-1-Iodo-2,3-propanediol 71214-80-7P, 1R,2S-1,2-Indandiol  
 195625-05-9P  
 RL: IMF (Industrial manufacture); PREP (Preparation)  
 (polymer-supported optically active ligands for catalysts of  
 enantiomeric dihydroxylation and aminohydroxylation of unsatd. compds.)

IT 79-15-2, N-Bromoacetamide 95-13-6, Indene 556-56-9, Allyl iodide  
 7780-06-5, Isopropyl cinnamate  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (polymer-supported optically active ligands for catalysts of  
 enantiomeric dihydroxylation and aminohydroxylation of unsatd. compds.)

IT 79-10-7D, Acrylic acid, esters, polymers 9003-17-2, Polybutadiene  
 9003-31-0, Polyisoprene 9003-39-8, Polyvinylpyrrolidone 9003-53-6,  
 Polystyrene  
 RL: CAT (Catalyst use); USES (Uses)  
 (support; polymer-supported optically active ligands for catalysts of  
 enantiomeric dihydroxylation and aminohydroxylation of unsatd. compds.)

L25 ANSWER 6 OF 12 CAPLUS COPYRIGHT 2003 ACS on STN

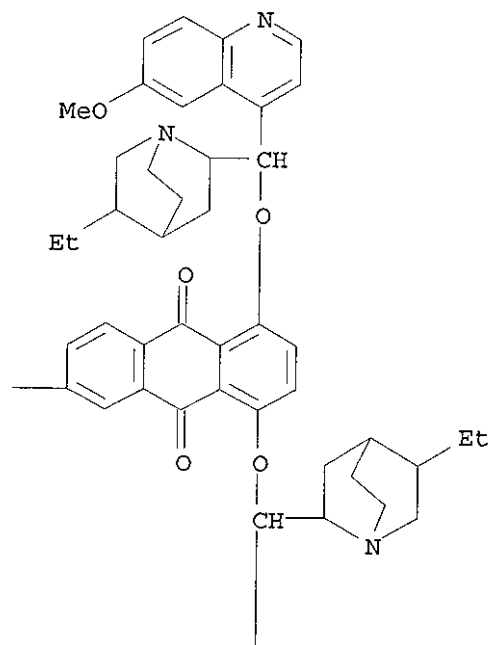
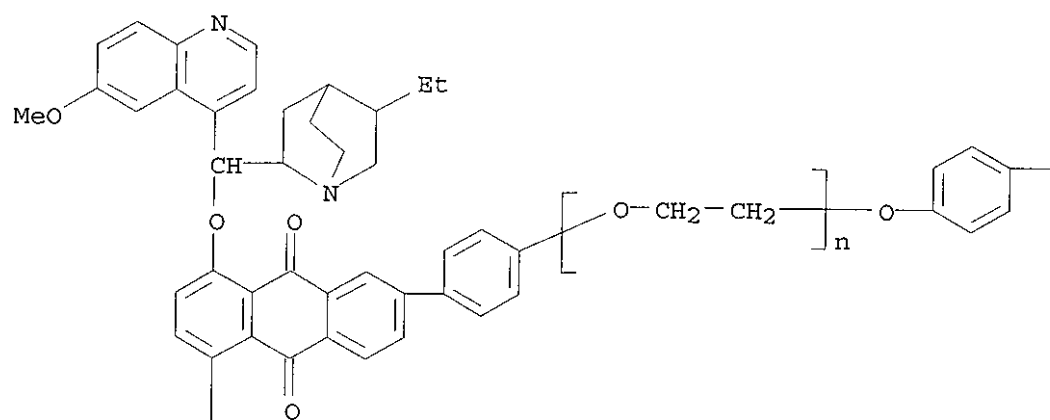
ACCESSION NUMBER: 2001:755142 CAPLUS  
 DOCUMENT NUMBER: 136:216511  
 TITLE: Application of the continuous Sharpless  
 dihydroxylation  
 AUTHOR(S): Woltinger, Jens; Henniges, Hans; Krimmer, Hans-Peter;  
 Bommarius, Andreas S.; Drauz, Karlheinz  
 CORPORATE SOURCE: Business Unit Fine Chemicals, Degussa AG, Hanau,  
 D-63403, Germany  
 SOURCE: Tetrahedron: Asymmetry (2001), 12(15), 2095-2098  
 CODEN: TASYE3; ISSN: 0957-4166  
 PUBLISHER: Elsevier Science Ltd.  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

AB A continuously run Sharpless dihydroxylation in a membrane reactor gives  
 information on osmate leaching in high mol. weight, homogeneous AD catalysts,  
 allowing conclusions on the leaching of heterogeneous Sharpless catalysts  
 to be drawn. To date, there have been contradictory descriptions of this  
 problem in the literature.

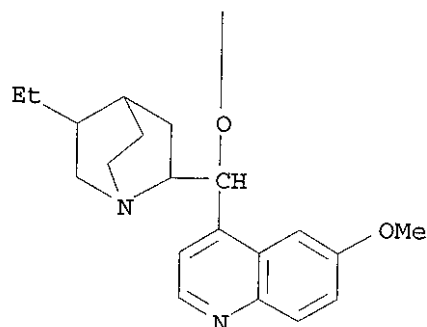
IT 386704-27-4  
 RL: CAT (Catalyst use); USES (Uses)  
 (continuous Sharpless dihydroxylation)

RN 386704-27-4 CAPLUS

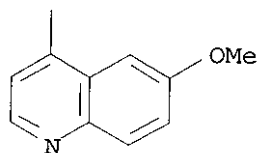
CN Poly(oxy-1,2-ethanediyl),  $\alpha$ -[4-[5,8-bis[[[(9S)-10,11-dihydro-6'-  
 methoxycinchonan-9-yl]oxy]-9,10-dihydro-9,10-dioxo-2-anthracenyl]phenyl]-  
 $\omega$ -[4-[5,8-bis[[[(9S)-10,11-dihydro-6'-methoxycinchonan-9-yl]oxy]-9,10-  
 dihydro-9,10-dioxo-2-anthracenyl]phenoxy]- (9CI) (CA INDEX NAME)



PAGE 2-A



PAGE 2-B



CC 25-18 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)  
ST continuous Sharpless dihydroxylation osmate leaching

IT Dihydroxylation

(stereoselective, continuous; of tert-Bu homocinnamate)

IT 19718-36-6, Dipotassium osmate 386704-27-4

RL: CAT (Catalyst use); USES (Uses)

(continuous Sharpless dihydroxylation)

IT 154457-63-3

RL: RCT (Reactant); RACT (Reactant or reagent)

(continuous Sharpless dihydroxylation)

IT 402752-95-8P

RL: SPN (Synthetic preparation); PREP (Preparation)

(continuous Sharpless dihydroxylation)

REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L25 ANSWER 7 OF 12 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 2001:61268 CAPLUS

DOCUMENT NUMBER: 134:280368

TITLE: Asymmetric dihydroxylations using immobilized alkaloids with an anthraquinone core

AUTHOR(S) : Bolm, Carsten; Maischak, Astrid

CORPORATE SOURCE: Institut fur Organische Chemie der RWTH Aachen,  
Aachen, 52056, Germany

SOURCE: Synlett (2001), (1), 93-95

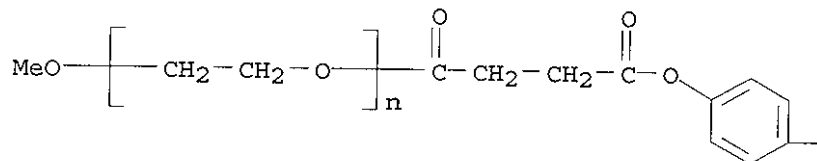
CODEN: SYNLES; ISSN: 0936-5214

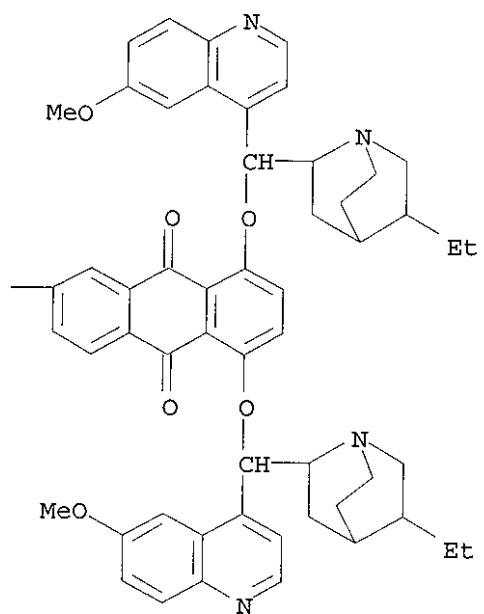
PUBLISHER: Georg Thieme Verlag

DOCUMENT TYPE: Journal

LANGUAGE: English  
 OTHER SOURCE(S): CASREACT 134:280368  
 AB In Os-catalyzed dihydroxylations, use of polymer-supported alkaloids with an anthraquinone core allows to obtain optically active diols with high enantioselectivities. Soluble as well as insol. polymers were tested for immobilization.  
 IT 332877-55-1P 332877-56-2P 332877-58-4P  
 332877-59-5P  
 RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation);  
 USES (Uses)  
 (asym. dihydroxylation using immobilized alkaloids with anthraquinone core)  
 RN 332877-55-1 CAPLUS  
 CN Poly(oxy-1,2-ethanediyl),  $\alpha$ -[4-[4-[5,8-bis[[[(9S)-10,11-dihydro-6'-methoxycinchonan-9-yl]oxy]-9,10-dihydro-9,10-dioxo-2-anthracenyl]phenoxy]-1,4-dioxobutyl]- $\omega$ -methoxy- (9CI) (CA INDEX NAME)

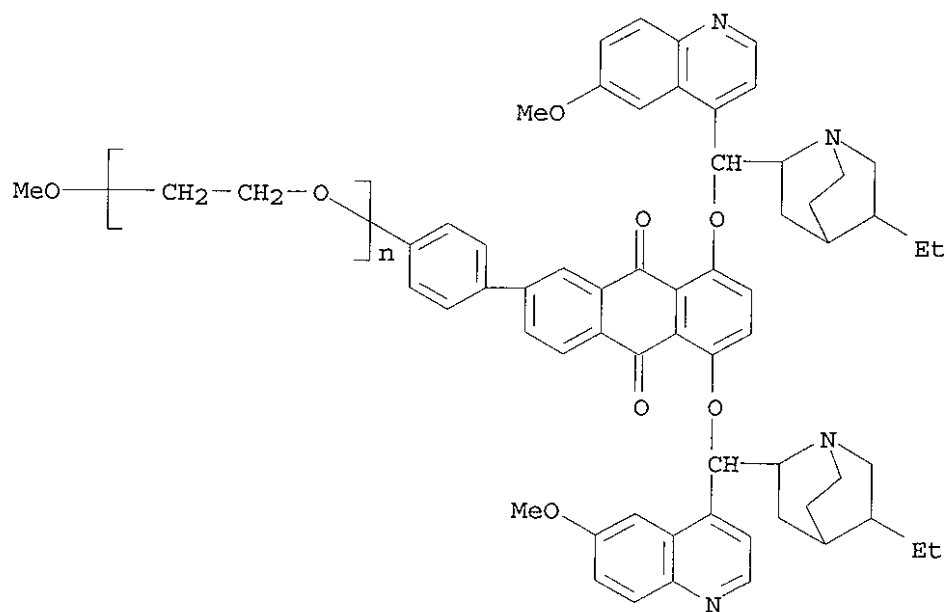
PAGE 1-A





RN 332877-56-2 CAPLUS

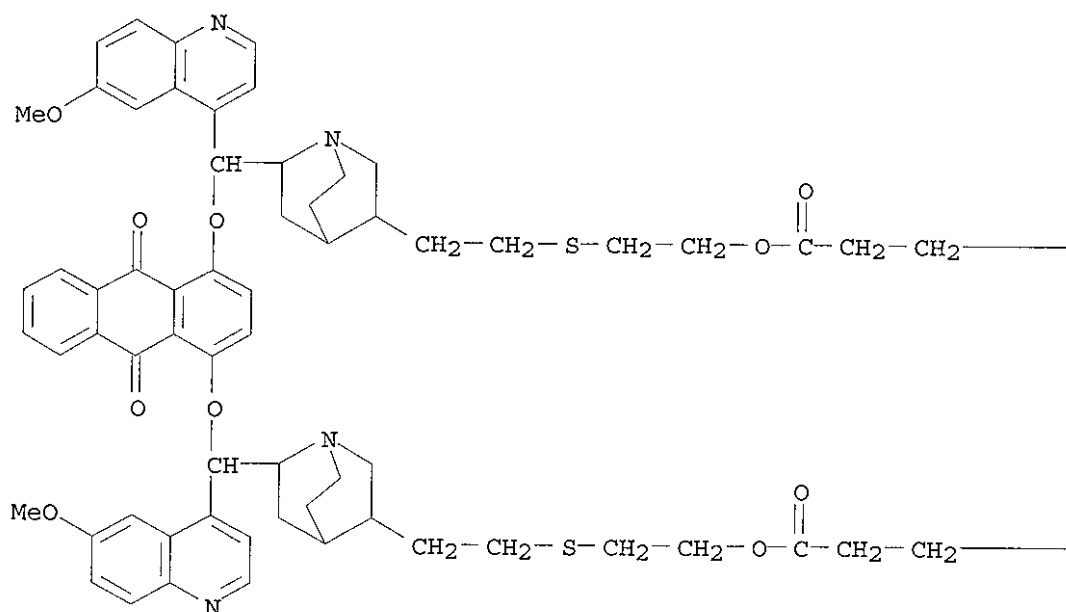
CN Poly(oxy-1,2-ethanediyl),  $\alpha$ -[4-[5,8-bis[[[(9S)-10,11-dihydro-6'-methoxycinchonan-9-yl]oxy]-9,10-dihydro-9,10-dioxo-2-anthracenyl]phenyl]- $\omega$ -methoxy- (9CI) (CA INDEX NAME)



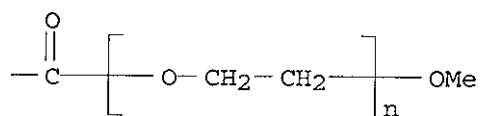
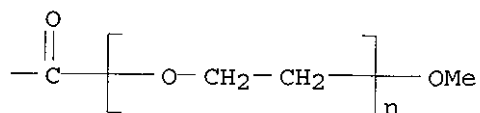
RN 332877-58-4 CAPLUS

CN Poly(oxy-1,2-ethanediyl),  $\alpha, \alpha'$ -(9,10-dihydro-9,10-dioxo-1,4-anthracenediyl)bis[oxy[(9S)-10,11-dihydro-6'-methoxycinchonan-9,11-diyl]thio-2,1-ethanediyl]oxy(1,4-dioxo-4,1-butanediyl)]bis[ $\omega$ -methoxy-(9CI) (CA INDEX NAME)

PAGE 1-A



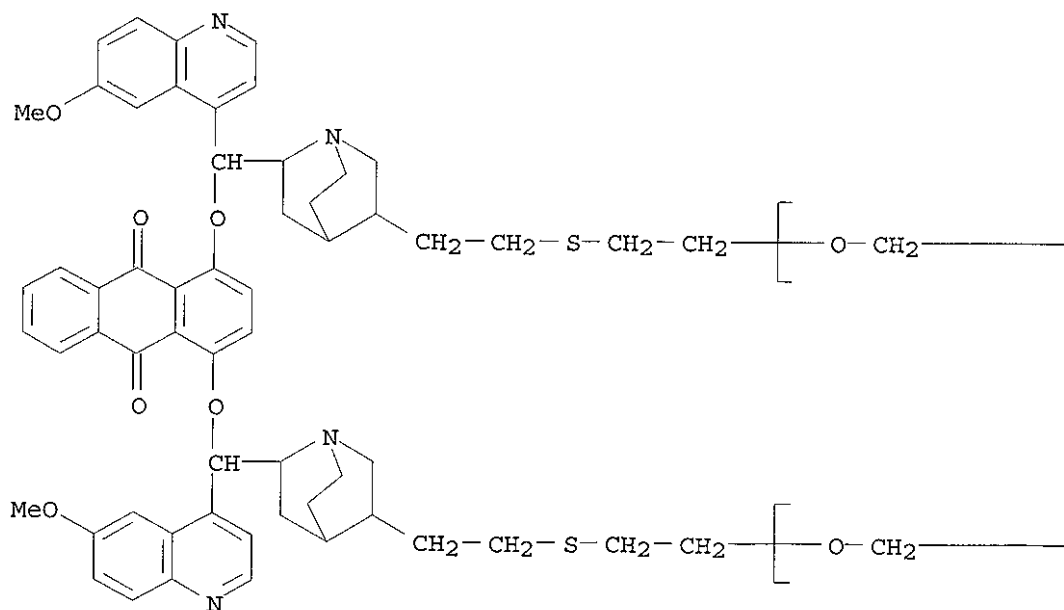
PAGE 1-B

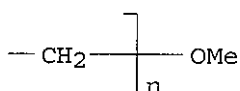
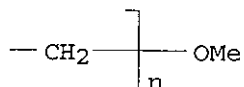


RN 332877-59-5 CAPLUS

CN Poly(oxy-1,2-ethanediyl),  $\alpha, \alpha'$ -(9,10-dihydro-9,10-dioxo-1,4-anthracenediyl)bis[oxy[(9S)-10,11-dihydro-6'-methoxycinchonan-9,11-diyl]thio-2,1-ethanediyl]bis[ $\omega$ -methoxy- (9CI) (CA INDEX NAME)

PAGE 1-A





- CC 21-2 (General Organic Chemistry)
- ST anthraquinone immobilized alkaloid catalyst asym dihydroxylation; diol stereoselective prepn; alkene asym dihydroxylation immobilized alkaloid catalyst
- IT Glycols, preparation  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (1,2-; asym. dihydroxylation using immobilized alkaloids with anthraquinone core)
- IT Alkaloids, uses  
 RL: CAT (Catalyst use); USES (Uses)  
 (asym. dihydroxylation using immobilized alkaloids with anthraquinone core)
- IT Alkenes, reactions  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (asym. dihydroxylation using immobilized alkaloids with anthraquinone core)
- IT Hydroxylation catalysts  
 (stereoselective dihydroxylation; asym. dihydroxylation using immobilized alkaloids with anthraquinone core)
- IT 332877-54-0DP, silica supported 332877-54-0P 332877-55-1P  
 332877-56-2P 332877-58-4P 332877-59-5P  
 RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
 (asym. dihydroxylation using immobilized alkaloids with anthraquinone core)
- IT 95-13-6, Indene 556-56-9, Allyl iodide  
 RL: RCT (Reactant); RACT (Reactant or reagent)

(asym. dihydroxylation using immobilized alkaloids with anthraquinone core)

IT 554-10-9P, 3-Iodo-1,2-propanediol 4370-02-9P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (asym. dihydroxylation using immobilized alkaloids with anthraquinone core)

IT 540-36-3, 1,4-Difluorobenzene 583-71-1, 4-Bromo-1,2-xylene 1435-55-8, Dihydroquinidine 28736-42-7  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (preparation of immobilized alkaloids with anthraquinone core as catalysts for asym. dihydroxylation)

IT 332877-52-8P 332877-53-9P 332877-57-3P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (preparation of immobilized alkaloids with anthraquinone core as catalysts for asym. dihydroxylation)

REFERENCE COUNT: 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L25 ANSWER 8 OF 12 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1999:268758 CAPLUS

DOCUMENT NUMBER: 131:13121

TITLE: A novel fluorescent monomer for the selective detection of phenols and anilines

AUTHOR(S): Reppy, Mary A.; Cooper, Martin E.; Smithers, Juston L.; Gin, Douglas L.

CORPORATE SOURCE: Department of Chemistry, University of California, Berkeley, CA, 94720-1460, USA

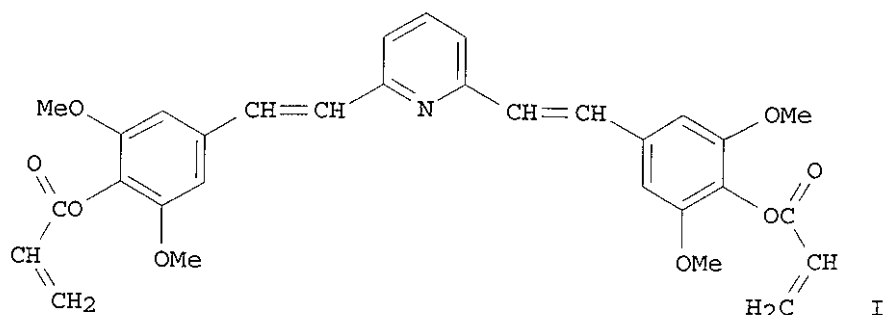
SOURCE: Journal of Organic Chemistry (1999), 64(11), 4191-4195  
 CODEN: JOCEAH; ISSN: 0022-3263

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

GI



AB The authors have developed a new polymerizable fluorescent probe,

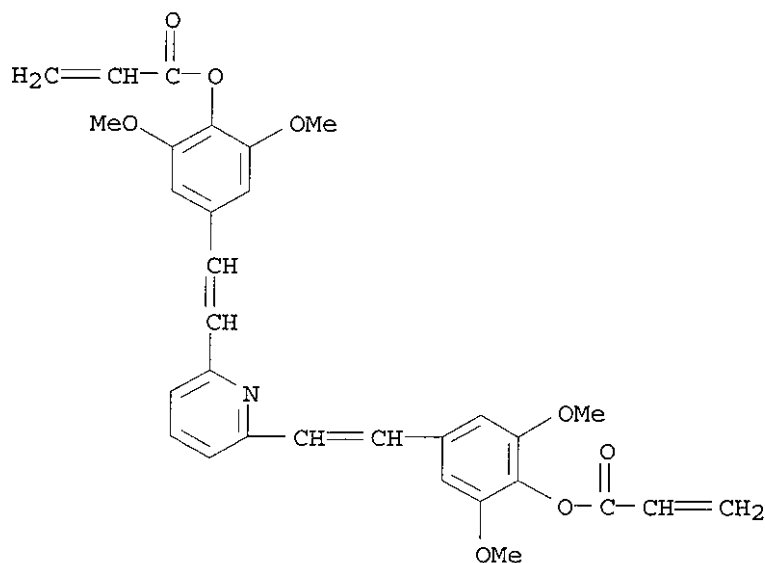
2,6-bis[2-(4-acryloyl-3,5-dimethoxyphenyl)vinyl]pyridine (I), that is quenched selectively by aromatic alcs. and amines, even in the presence of their aliphatic analogs, oxygen, and water. This selective quenching occurs with I dissolved in nonpolar solvents such as benzene or crosslinked inside a polymethacrylate matrix. Monomer I contains a central pyridine ring similar to C. V. Kumar's fluorophore (1993, 1994). However, it has a different conjugated core architecture and can also participate in radical copolymns. with conventional monomers. This novel fluorophore architecture leads to a different mechanism of fluorescence quenching from that of Kumar's fluorophore and also to a high degree of analyte selectivity.

IT 225642-49-9P, 2,6-Bis[2-(4-acryloyl-3,5-dimethoxyphenyl)vinyl]pyridine-ethylene glycol dimethacrylate copolymer  
 RL: ARG (Analytical reagent use); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); USES (Uses)  
 (preparation for the selective detection of phenols and anilines by fluorescence quenching)  
 RN 225642-49-9 CAPLUS  
 CN 2-Propenoic acid, 2-methyl-, 1,2-ethanediyl ester, polymer with 2,6-pyridinediylbis[2,1-ethenediyl(2,6-dimethoxy-4,1-phenylene)] di-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 188646-84-6

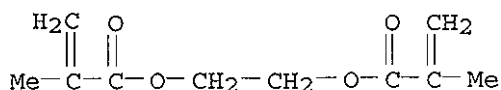
CMF C31 H29 N O8



CM 2

CRN 97-90-5

CMF C10 H14 O4



- CC 80-3 (Organic Analytical Chemistry)  
Section cross-reference(s): 25, 37
- ST bisacryloldimethoxyphenylvinylpyridine fluorescent probe phenol aniline selective detection
- IT Amines, analysis  
RL: ANT (Analyte); PRP (Properties); ANST (Analytical study)  
(aromatic; preparation and NMR and use of 2,6-bis[2-(4-acryloyl-3,5-dimethoxyphenyl)vinyl]pyridine for selective detection of phenols and anilines by fluorescent quenching)
- IT Solvent effect  
(on fluorescent quenching of 2,6-bis[2-(4-acryloyl-3,5-dimethoxyphenyl)vinyl]pyridine)
- IT Fluorescence quenching  
(preparation and NMR and use of 2,6-bis[2-(4-acryloyl-3,5-dimethoxyphenyl)vinyl]pyridine for selective detection of phenols and anilines by fluorescent quenching)
- IT Phenols, analysis  
RL: ANT (Analyte); PRP (Properties); ANST (Analytical study)  
(preparation and NMR and use of 2,6-bis[2-(4-acryloyl-3,5-dimethoxyphenyl)vinyl]pyridine for selective detection of phenols and anilines by fluorescent quenching)
- IT 62-53-3, Benzenamine, analysis 100-61-8, N-Methyl aniline, analysis 106-44-5, analysis 108-39-4, analysis 108-44-1, m-Toluidine, analysis 108-95-2, Phenol, analysis 120-72-9, Indole, analysis 121-69-7, analysis  
RL: ANT (Analyte); PRP (Properties); ANST (Analytical study)  
(2,6-bis[2-(4-acryloyl-3,5-dimethoxyphenyl)vinyl]pyridine for selective detection of phenols and anilines by fluorescent quenching)
- IT 97-90-5, Ethylene glycol dimethacrylate  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(copolymer. with 2,6-bis[2-(4-acryloyl-3,5-dimethoxyphenyl)vinyl]pyridine)
- IT 64-17-5, Ethanol, analysis 75-65-0, analysis 100-51-6, Benzyl alcohol, analysis 108-93-0, Cyclohexanol, analysis 109-73-9, Butylamine, analysis 111-92-2, Dibutylamine 121-44-8, analysis  
RL: ANT (Analyte); PRP (Properties); ANST (Analytical study)  
(fluorescent quenching of 2,6-bis[2-(4-acryloyl-3,5-dimethoxyphenyl)vinyl]pyridine by)
- IT 64-19-7, Acetic acid, analysis 67-56-1, Methanol, analysis 67-64-1, 2-Propanone, analysis 67-68-5, DMSO, analysis 78-93-3, 2-Butanone, analysis 100-66-3, Anisole, analysis 111-31-9, Hexanethiol  
RL: ARU (Analytical role, unclassified); PRP (Properties); ANST (Analytical study)  
(fluorescent quenching of 2,6-bis[2-(4-acryloyl-3,5-

- dimethoxyphenyl)vinyl]pyridine by)
- IT 7703-74-4P, 2,6-Bis(bromomethyl)pyridine  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (in preparation of 2,6-bis[2-(4-acryloyl-3,5-dimethoxyphenyl)vinyl]pyridine)
- IT 61973-87-3P, 2,6-Bis(diethoxyphosphorylmethyl)pyridine 106852-80-6P,  
 4-tert-Butyldimethylsilyloxy-3,5-dimethoxybenzaldehyde 225642-47-7P,  
 2,6-Bis(2-(4-hydroxy-3,5-dimethoxyphenyl)vinyl)pyridine  
 RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (preparation and NMR and reaction in preparation of 2,6-bis[2-(4-acryloyl-3,5-dimethoxyphenyl)vinyl]pyridine)
- IT 188646-84-6P, 2,6-Bis[2-(4-acryloyl-3,5-dimethoxyphenyl)vinyl]pyridine  
 RL: ARG (Analytical reagent use); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); USES (Uses)  
 (preparation and NMR and use of 2,6-bis[2-(4-acryloyl-3,5-dimethoxyphenyl)vinyl]pyridine for selective detection of phenols and anilines by fluorescent quenching)
- IT 225642-49-9P, 2,6-Bis[2-(4-acryloyl-3,5-dimethoxyphenyl)vinyl]pyridine-ethylene glycol dimethacrylate copolymer  
 RL: ARG (Analytical reagent use); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); USES (Uses)  
 (preparation for the selective detection of phenols and anilines by fluorescence quenching)
- IT 814-68-6, 2-Propenoyl chloride  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction with 2,6-Bis(2-(4-hydroxy-3,5-dimethoxyphenyl)vinyl)pyridine)
- IT 122-52-1, Triethyl phosphite  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction with 2,6-Bis(bromomethyl)pyridine)
- IT 1195-59-1, 2,6-Pyridinedimethanol  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction with hydrobromic acid in acetic acid)
- IT 18162-48-6, tert-Butyldimethylsilyl chloride  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction with syringaldehyde)
- IT 134-96-3, Syringaldehyde  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction with tert-butyldimethylsilyl chloride)

REFERENCE COUNT: 37 THERE ARE 37 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L25 ANSWER 9 OF 12 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1998:531712 CAPLUS

DOCUMENT NUMBER: 129:310123

TITLE: Molecular imprinting via a novel mixed acetal linker for a fluorescent sensor

AUTHOR(S): Reppy, Mary A.; Gin, Douglas L.

CORPORATE SOURCE: Department of Chemistry, University of California, Berkeley, CA, 94720, USA

SOURCE: Polymer Preprints (American Chemical Society, Division

of Polymer Chemistry) (1998), 39(2), 386-387  
CODEN: ACPPAY; ISSN: 0032-3934  
PUBLISHER: American Chemical Society, Division of Polymer  
Chemistry  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
GI

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

AB Some work was done incorporating imprinting polymers in sensors. The authors are studying the incorporation of a fluorescent event, thus creating a fluorescent sensor for the analyte.  $\beta$ -Estradiol was chosen to be used in an imprinting approach that a combination of the ionic and covalent methods. The  $\beta$ -estradiol converted into  $\beta$ -estradiol/HEMA acetal (I) at the 17-hydro group of the estradiol. The chosen fluorophore was a pyridine-based fluorophore-diacrylate (II) previously developed in the authors' group. II quenched by phenolic species in solution and can form an acid-base complex with the phenol group on  $\beta$ -estradiol. Incorporation of fluorophore into the polymer as an acid-base complex with I creates a 2nd binding site in the cleaved polymer for the phenolic group of the  $\beta$ -estradiol and may allow the fluorescent detection of binding. The results can be used for developing a fluorescent sensor for  $\beta$ -estradiol.

IT 214463-49-7P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(imprinting polymer using novel mixed acetal linker for fluorescent sensor for  $\beta$ -estradiol)

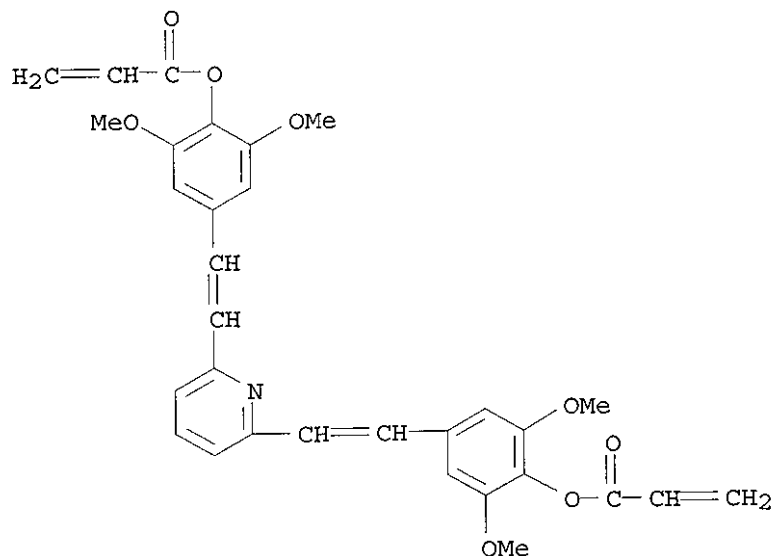
RN 214463-49-7 CAPLUS

CN 2-Propenoic acid, 1,2-ethanediyl ester, polymer with 2,2'-azobis[2-methylpropanenitrile] and 2,6-pyridinediylbis[2,1-ethenediyl(2,6-dimethoxy-4,1-phenylene)] di-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 188646-84-6

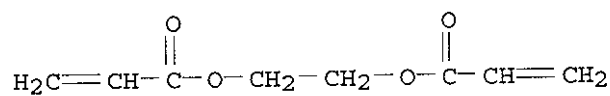
CMF C31 H29 N O8



CM 2

CRN 2274-11-5

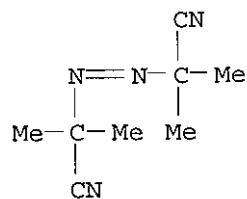
CMF C8 H10 O4



CM 3

CRN 78-67-1

CMF C8 H12 N4



CC 80-2 (Organic Analytical Chemistry)

Section cross-reference(s): 32, 37

ST estradiol acetal deriv imprinting polymer sensor; fluorescent sensor  
imprinting polymer estradiol detn

KOROMA EIC1700

IT Optical sensors  
(fluorometric; mol. imprinting via novel mixed acetal linker for  
fluorescent sensor for  $\beta$ -estradiol)

IT 214463-49-7P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(imprinting polymer using novel mixed acetal linker for fluorescent  
sensor for  $\beta$ -estradiol)

IT 50-28-2,  $\beta$ -Estradiol, analysis  
RL: ANT (Analyte); RCT (Reactant); ANST (Analytical study); RACT (Reactant  
or reagent)  
(mol. imprinting via novel mixed acetal linker for fluorescent sensor  
for  $\beta$ -estradiol)

IT 188646-84-6  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(mol. imprinting via novel mixed acetal linker for fluorescent sensor  
for  $\beta$ -estradiol)

IT 214463-48-6P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
(Reactant or reagent)  
(mol. imprinting via novel mixed acetal linker for fluorescent sensor  
for  $\beta$ -estradiol)

IT 67-66-3, properties 71-43-2, Benzene, properties 110-82-7,  
Cyclohexane, properties 2189-60-8, Octyl benzene  
RL: PRP (Properties)  
(porogen in preparation of imprinting polymer using novel mixed acetal  
linker for fluorescent sensor for  $\beta$ -estradiol)

REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L25 ANSWER 10 OF 12 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1997:696920 CAPLUS

DOCUMENT NUMBER: 127:354859

TITLE: Covalently immobilized fluoroionophores as optical ion  
sensorsINVENTOR(S): Barnard, Steven Mark; Waldner, Adrian; Reinhoudt,  
David; Berger, JosephPATENT ASSIGNEE(S): Novartis Ag, Switz.; Barnard, Steven Mark; Waldner,  
Adrian; Reinhoudt, David; Berger, Joseph

SOURCE: PCT Int. Appl., 63 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO.                                                                                                                                                                                                         | KIND | DATE     | APPLICATION NO. | DATE     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----------|-----------------|----------|
| WO 9739337                                                                                                                                                                                                         | A1   | 19971023 | WO 1997-EP1695  | 19970404 |
| W: AL, AU, BA, BB, BG, BR, CA, CN, CU, CZ, EE, GE, HU, IL, IS, JP,<br>KP, KR, LC, LK, LR, LT, LV, MG, MK, MN, MX, NO, NZ, PL, RO, SG,<br>SI, SK, TR, TT, UA, US, UZ, VN, YU, AM, AZ, BY, KG, KZ, MD, RU,<br>TJ, TM |      |          |                 |          |

RW: GH, KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FI, FR, GB,  
GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN,  
ML, MR, NE, SN, TD, TG

|                           |    |          |                |          |
|---------------------------|----|----------|----------------|----------|
| AU 9726366                | A1 | 19971107 | AU 1997-26366  | 19970404 |
| EP 894261                 | A1 | 19990203 | EP 1997-918111 | 19970404 |
| R: CH, DE, FR, GB, IT, LI |    |          |                |          |
| JP 2000508648             | T2 | 20000711 | JP 1997-536702 | 19970404 |
| ZA 9703185                | A  | 19971016 | ZA 1997-3185   | 19970415 |
| US 6417005                | B1 | 20020709 | US 1998-171330 | 19981207 |

PRIORITY APPLN. INFO.:

|                |   |          |
|----------------|---|----------|
| CH 1996-959    | A | 19960416 |
| WO 1997-EP1695 | W | 19970404 |

OTHER SOURCE(S): MARPAT 127:354859

AB Fluoroionophores that are functionalized with reactive groups and correspond to I-R1-F-R2-G, wherein I is a monovalent residue of an ionophore, wherein F is a divalent residue of a fluorophore, wherein G is a functional group and R1 and R2 are each independently of the other a direct bond or a bridging group. The fluoroionophores may be covalently bound to carrier materials and are used as active components in polymer membranes of optical sensors for the detection of ions. The sensors are distinguished by a long usable life and a high°of sensitivity.

IT 198342-21-1P

RL: ARG (Analytical reagent use); DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); USES (Uses)  
(preparation of covalently immobilized fluoroionophores as optical ion sensors)

RN 198342-21-1 CAPLUS

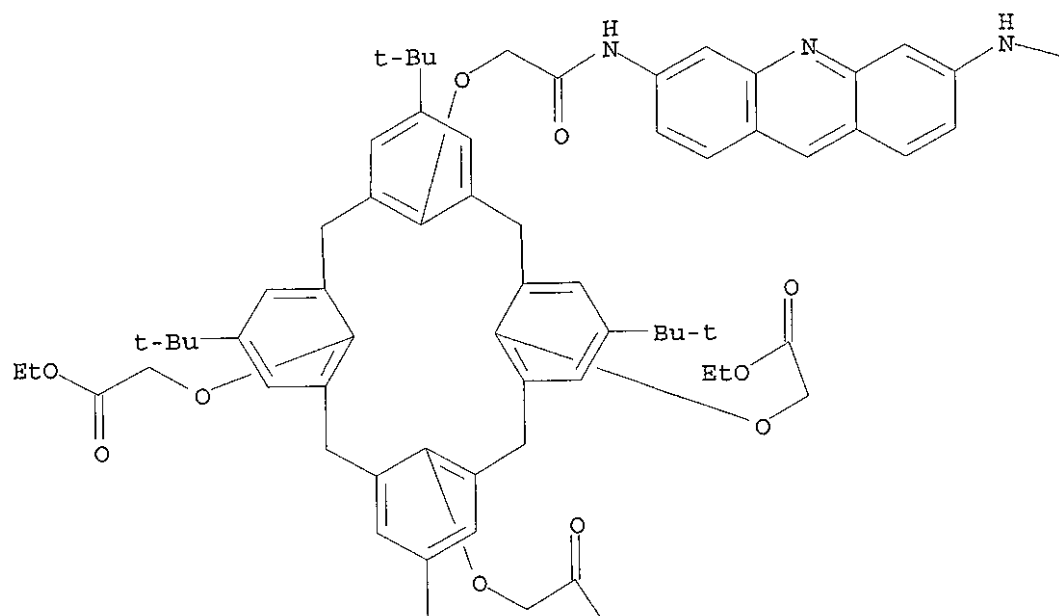
CN 2-Propenoic acid, 2-ethylhexyl ester, polymer with N,N-dimethyl-2-propenamide and triethyl 2,2',2''-[[5,11,17,23-tetrakis(1,1-dimethylethyl)-28-[2-[[6-[[8-[(2-methyl-1-oxo-2-propenyl)amino]octyl]amino]-3-acridinyl]amino]-2-oxoethoxy]pentacyclo[19.3.1.13,7.19,13.115,19]octacos-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-25,26,27-triyl]tris(oxy)]tris[acetate] (9CI) (CA INDEX NAME)

CM 1

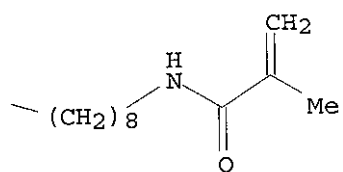
CRN 198342-07-3

CMF C83 H106 N4 O12

PAGE 1-A



PAGE 1-B



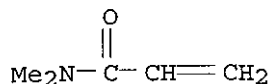
PAGE 2-A



CM 2

CRN 2680-03-7

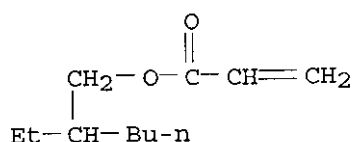
CMF C5 H9 N O



CM 3

CRN 103-11-7

CMF C11 H20 O2



IC ICM G01N021-64  
ICS G01N021-77; C07D219-08; G01N031-22; G01N033-84  
CC 79-2 (Inorganic Analytical Chemistry)  
Section cross-reference(s): 27, 73  
ST covalently immobilized fluoroionophore optical ion sensor  
IT Fluorescent substances  
Ionophores  
(preparation of covalently immobilized fluoroionophores as optical ion sensors)  
IT Metacyclophanes  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(preparation of covalently immobilized fluoroionophores as optical ion sensors)  
IT Optical sensors  
(sodium ion determination by optical sensor based on covalently immobilized fluoroionophores)  
IT 198342-21-1P  
RL: ARG (Analytical reagent use); DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); USES (Uses)  
(preparation of covalently immobilized fluoroionophores as optical ion sensors)  
IT 198342-05-1P  
RL: ARG (Analytical reagent use); PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)  
(preparation of covalently immobilized fluoroionophores as optical ion sensors)  
IT 198342-07-3P 198342-17-5P 198342-18-6P 198342-19-7P 198342-20-0P  
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(preparation of covalently immobilized fluoroionophores as optical ion sensors)

IT 78-67-1, AIBN 79-37-8, Oxalyl chloride 103-11-7 584-08-7, Potassium carbonate 920-46-7, Methacrylic acid chloride 2680-03-7 5460-29-7 17702-83-9 112452-84-3, N-Tosyl-3,6-diaminoacridine 113215-72-8 147513-54-0

RL: RCT (Reactant); RACT (Reactant or reagent)

(preparation of covalently immobilized fluoroionophores as optical ion sensors)

IT 136734-88-8P 198342-08-4P 198342-09-5P 198342-12-0P 198342-14-2P 198342-16-4P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(preparation of covalently immobilized fluoroionophores as optical ion sensors)

IT 7440-23-5, Sodium, analysis

RL: ANT (Analyte); ANST (Analytical study)

(sodium ion determination by optical sensor based on covalently immobilized fluoroionophores)

L25 ANSWER 11 OF 12 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1997:44332 CAPLUS

DOCUMENT NUMBER: 126:52080

TITLE: Supramolecular Electrode Materials Derivated from Pyrrole-Substituted Ruthenium(II) Bipyridyl Calix[4]arenes

AUTHOR(S): Betttega, Herminia Cano-Yelo; Hissler, Muriel; Moutet, Jean-Claude; Ziessel, Raymond

CORPORATE SOURCE: Laboratoire d'Electrochimie Organique et de Photochimie Redox, Universite Joseph Fourier Grenoble 1, Grenoble, 38041, Fr.

SOURCE: Chemistry of Materials (1997), 9(1), 3-5  
CODEN: CMATEX; ISSN: 0897-4756

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The synthesis of novel calix[4]arenes containing one and two tris-bipyridylruthenium(II) units bearing pendant pyrrole groups is described. Their oxidative electropolymerization in MeCN electrolyte allows the growth on carbon electrodes of thin polymer films containing both calixarene and ruthenium complex moieties. Copolymers with N-methylpyrrole also were synthesized. Also, the strong adsorption of the reduced forms of the complexes allows the reductive accumulation on electrode surfaces of thicker layers of monomers, which are readily polymerized upon electrooxidation. The study constitutes the 1st example of electropolymerization of calixarenes functionalized with transition metal complexes.

IT 184851-02-3P

RL: DEV (Device component use); PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)

(cyclic voltammetry in acetonitrile of carbon electrode modified with)

RN 184851-02-3 CAPLUS

CN Ruthenium(4+), tetrakis[4-methyl-4'-[4-(1H-pyrrol-1-yl)butyl]-2,2'-bipyridine- $\kappa$ N1, $\kappa$ N1'] [ $\mu$ -[5,11,17,23-tetrakis(1,1-dimethylethyl)-26,28-bis[(5'-methyl[2,2'-bipyridin]-5-yl- $\kappa$ N1, $\kappa$ N1')methoxy]pentacyclo[19.3.1.13,7.19,13.115,19]octacos-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-25,27-diol]]di-, stereoisomer, tetrakis[hexafluorophosphate(1-)], homopolymer (9CI) (CA INDEX NAME)

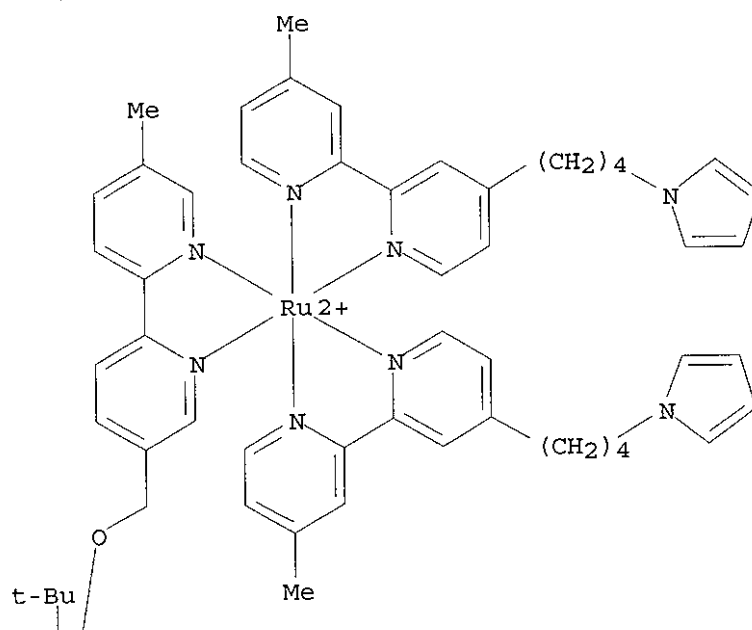
CM 1

CRN 184682-30-2

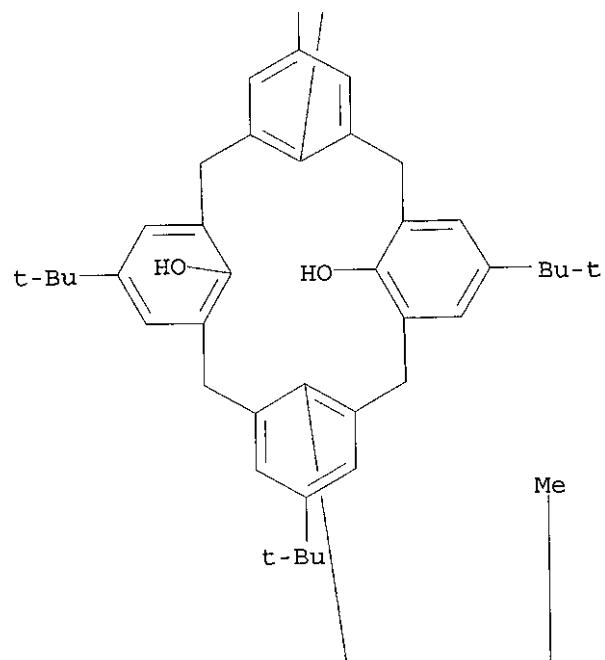
CMF C144 H160 N16 O4 Ru2

CCI CCS

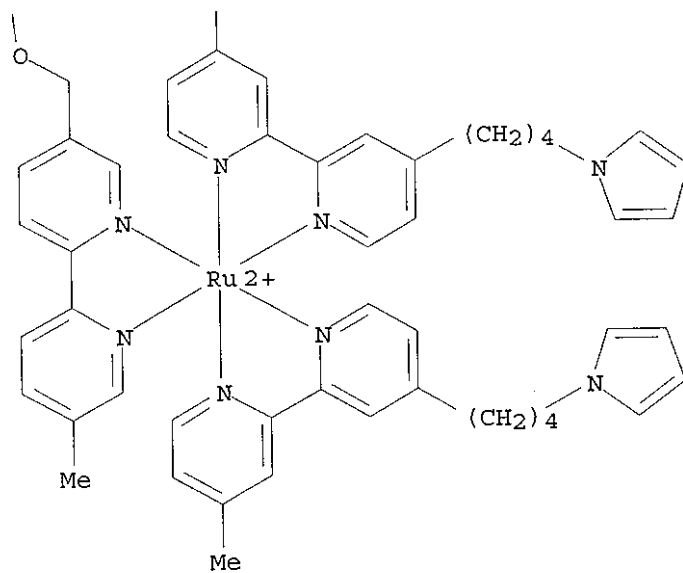
PAGE 1-A



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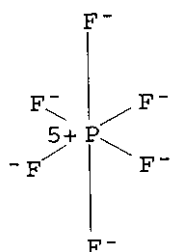


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CM 2

CRN 16919-18-9  
CMF F6 P  
CCI CCS



- CC 72-2 (Electrochemistry)  
Section cross-reference(s): 35, 36, 66, 78
- ST supramol electrode derived pyrrole ruthenium calixarene; pyrrole substituted ruthenium bipyridyl calixarene electropolymer; adsorbed ruthenium bipyridyl calixarene pyrrole electropolymer; oxidative electropolymer ruthenium bipyridyl calixarene pyrrole; methylpyrrole copolymer ruthenium bipyridyl calixarene pyrrole
- IT Polymerization  
Polymerization  
(electrochem., oxidative; of pyrrole-substituted ruthenium bipyridyl calix[4]arenes in acetonitrile)
- IT Adsorption  
(electrochem.; of reduced pyrrole-substituted ruthenium bipyridyl calix[4]arenes on carbon in acetonitrile)
- IT Conformation  
Mass spectra  
NMR (nuclear magnetic resonance)  
(of pyrrole-substituted ruthenium bipyridyl calix[4]arenes)
- IT Reduction, electrochemical  
Reduction potential  
(of pyrrole-substituted ruthenium bipyridyl calix[4]arenes in acetonitrile: adsorption on electrode of reduced form)
- IT Adsorbed substances  
(oxidative electropolymer. of pyrrole-substituted ruthenium bipyridyl calix[4]arenes in acetonitrile)
- IT Electrodes  
(supramol. electrode materials derived from pyrrole-substituted ruthenium bipyridyl calix[4]arenes)
- IT 184851-01-2P 184851-02-3P 184851-03-4P  
RL: DEV (Device component use); PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)  
(cyclic voltammetry in acetonitrile of carbon electrode modified with)
- IT 7440-44-0, Carbon, uses  
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)  
(cyclic voltammetry of carbon electrode in acetonitrile modified with)

- pyrrole-substituted ruthenium bipyridyl calix[4]arenes)
- IT 1923-70-2, Tetrabutylammonium perchlorate  
 RL: NUU (Other use, unclassified); PRP (Properties); USES (Uses)  
 (cyclic voltammetry of pyrrole-substituted ruthenium bipyridyl  
 calix[4]arenes in acetonitrile containing)
- IT 96-54-8, N-Methylpyrrole  
 RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)  
 (electrochem. oxidative polymerization pyrrole-substituted ruthenium  
 bipyridyl  
 calix[4]arenes with)
- IT 184682-33-5 184682-34-6 184682-35-7  
 RL: FMU (Formation, unclassified); PRP (Properties); FORM (Formation,  
 nonpreparative)  
 (electrochem. reductive formation)
- IT 184682-29-9P 184682-31-3P  
 RL: DEV (Device component use); PRP (Properties); RCT (Reactant); SPN  
 (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent);  
 USES (Uses)  
 (preparation and cyclic voltammetry and electropolymer.: supramol. electrode  
 materials derivated from pyrrole-substituted ruthenium(II) bipyridyl  
 calix[4]arenes)
- IT 145145-13-7  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction with bipyridyl calix[4]arenes)
- IT 184682-32-4 184851-04-5  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction with ruthenium (pyrrolyl)methylbipyridine chloro complex)

L25 ANSWER 12 OF 12 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1991:493081 CAPLUS

DOCUMENT NUMBER: 115:93081

TITLE: Oligomers containing carbocyanine/flexible chain  
 segments as nonlinear optical materials

AUTHOR(S): Yu, Luping; Chen, Mai; Dalton, Larry R.

CORPORATE SOURCE: Dep. Chem., Univ. South. California, Los Angeles, CA,  
 90089-1062, USA

SOURCE: Polymer (1991), 32(8), 1369-75  
 CODEN: POLMAG; ISSN: 0032-3861

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Oligomers containing carbocyanine units linked by flexible chain segments were  
 prepared. The oligomers were cast into films and had improved miscibility  
 with other host polymer matrixes compared to the simple carbocyanine mols.  
 Degenerate 4-wave mixing (DFWM) measurements showed that a pure oligomer  
 film had high optical nonlinearity,  $\chi(3)/\alpha = 9.0 \times 10^{-13}$   
 esu·cm at  $\lambda = 532$  nm. The reaction of acidic protons in a  
 quinolidine quaternary salt with di-Et squarate was utilized to synthesize  
 a polymer. The polymer containing 13 repeat units, had a diffuse and strong  
 absorption in the visible region and did not exhibit a detectable DFWM  
 signal at 532 or 1064 nm.

- IT 135198-77-5P  
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(preparation and nonlinear optical properties of)

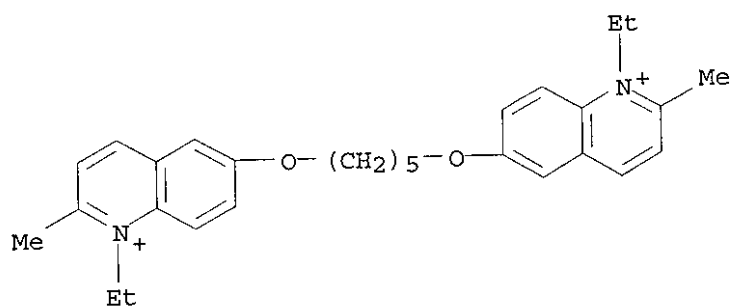
RN 135198-77-5 CAPLUS

CN Quinolinium, 6,6'-[1,5-pentanediybis(oxy)]bis[1-ethyl-2-methyl-,  
diiodide, polymer with 3,4-diethoxy-3-cyclobutene-1,2-dione (9CI) (CA  
INDEX NAME)

CM 1

CRN 132271-81-9

CMF C29 H36 N2 O2 . 2 I

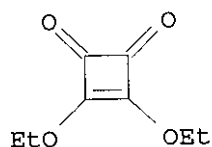


● 2 I<sup>-</sup>

CM 2

CRN 5231-87-8

CMF C8 H10 O4



CC 35-5 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 36

ST carbocyanine oligomer nonlinear optical material

IT Polyethers, preparation

RL: SPN (Synthetic preparation); PREP (Preparation)

(carbocyanine-containing, preparation and nonlinear optical properties of)

IT Optical nonlinear property

(of carbocyanine-containing polymers and oligomers)

IT Optical materials

(nonlinear, carbocyanine-containing oligomers, preparation and  
characterization)

KOROMA EIC1700

- of)
- IT 132271-82-0P 135072-99-0P  
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
 (oligomeric, preparation and nonlinear optical properties of)
- IT 1078-28-0P, 2-Methyl-6-methoxyquinoline  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation and hydrolysis or quaternization of, with Et iodide)
- IT 135198-77-5P  
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
 (preparation and nonlinear optical properties of)
- IT 132271-81-9P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (preparation and polymerization of)
- IT 135609-10-8P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (preparation and reaction of, with Et iodide)
- IT 135609-09-5P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (preparation and reaction of, with dibromoethane)
- IT 63151-43-9P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (preparation and reaction of, with tri-Et orthoformate)
- IT 135609-11-9P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of, as model for carbocyanine-containing oligomers)
- IT 106-93-4, 1,2-Dibromoethane  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction of, with methylhydroxyquinoline hydrogen bromide)
- IT 122-51-0, Triethyl orthoformate  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction of, with methylmethoxyethylquinoline iodide)
- IT 75-03-6, Ethyl iodide  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction of, with methylmethoxyquinoline or  
 bis(methylquinolinoxy)pentane)

=>